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SECTION OF OBSTETRICS AND GYNECOLOGY

PRESIDING: Dr. Frederick J. Lynch, Boston, Chairman; Dr. Frank A. Pemberton, Boston, Secretary.

CHAIRMAN LYNCH: The meeting will please come to order.

With your permission I am going to omit the reading of the minutes of the last meeting because the program is rather long. It is customary for the Chairman to appoint a Nominating Committee to select officers for the ensuing year and that will be done.

We are very fortunate today to have as our guest speaker a man who needs no introduction to a medical audience, one whose name is always associated with the word "version". I think it is a fair statement that he has done more versions than any doctor of all time, and I take great pleasure in introducing Dr. Irving W. Potter of Buffalo, whose subject is "The Technique of Elective Version."

DR. IRVING W. POTTER, Buffalo: *Mr. Chairman, Ladies and Gentlemen of the Massachusetts Medical Society*—I appreciate the honor which your Committee has conferred upon me in inviting me to come here today and speak on the subject of version. I want to bring before you the technique of elective version. My purpose in again calling your attention to this subject is to clear up certain points in technique which are not yet fully understood.

THE TECHNIQUE OF ELECTIVE VERSION*

BY IRVING W. POTTER, M.D.†

MY purpose in again calling your attention to this subject is to clear up certain points in the technique that are not yet fully understood.

First: The reason version is done so often, is to eliminate the second stage of labor, thereby relieving the mother of the suffering and damage to her soft parts from a long and tiresome second stage, as well as lessening the dangers to the child from prolonged pressure.

Secondly: Version should be performed at the end of the first stage of labor or at the beginning of the second stage. That means when the cervix is effaced and the os dilated or easily dilatable, and not before. We never attempt to go into the uterine cavity before the lower uterine segment is effaced and the os dilated; in other words, we do not attempt to deliver these children by version extraction until the patient is through the first stage of labor. I should like to have that distinctly understood. We never go in through like that if the lower uterine segment is as thick as one's finger. We wait until the segment is effaced and the os is dilated or easily dilatable.

Thirdly: Version can be performed upon any pregnant woman at term with normal pelvic measurements, whose child's head can be pushed down in the pelvis from above.

Fourthly: This is not necessarily a hospital procedure. Version can be performed in a home, and the results will be just as gratifying.

Fifthly: How to do it, assuming the patient to be through the first stage of labor, with the cervix effaced and the os dilated. She is prepared as for any vaginal operation. The operator is gowned with a short-sleeved gown and long-sleeved rubber gloves (picture). The vulva is scrubbed with soap and water and is shaved. No enema is given unless there is plenty of time for its expulsion, for if fecal matter appears during the delivery, it is more easily cared for in the solid mass than it would be in fluid form. The patient is then placed upon the delivery table, covered with sterile sheets and leggings. Here I want to make a plea for the expert anesthetist, who should be available in every locality; every man doing obstetrics should have his own anesthetist, who soon becomes familiar with what is wanted and perfect team-

*Read before the Section of Obstetrics and Gynecology of the Massachusetts Medical Society at its Annual Meeting at Boston, June 9, 1932.

†Potter—Attending Obstetrician, Deaconess, Buffalo City and Millard Fillmore Hospitals. For record and address of author see "This Week's Issue," page 329.

work is established to the interest of the patient as well as the operator. We do not recognize the so-called obstetrical anesthesia. If a patient is going to have anesthetics she must be asleep. She should not be in a position to kick the operator across the room. She has got to be sound asleep. So when we speak of anesthesia, we mean surgical anesthesia and not the so-called obstetrical anesthesia.

When the stage of surgical anesthesia is reached, the patient is brought into position so that the buttocks are at the edge of the table and the legs supported by two nurses (picture); or if assistants are not at hand, two chairs with their backs together may be used to support the legs (picture).

The patient's legs and the attendants holding them are now draped with sterile sheets, and the vulva, thighs and lower abdomen are scrubbed with soap and water and then irrigated with warm sterile water. We never have painted the abdomen, the thighs or the vulva with iodine or with mercurochrome; we make no application of mercurochrome in the vulva and canal; we use nothing but soap and water. The labia are spread apart and the bladder is emptied by a catheter. Now begins the preparation of the vaginal canal (picture) by first introducing one finger and making pressure from above downward and from within out until two fingers, then three and four fingers, and finally the whole hand, can be introduced with the palm up. I always use the left hand, no matter what the position of the child may be, leaving the right hand free for use upon the outside to handle instruments or water pitcher for irrigating purposes. With the hand in this position, carry it further up and gradually separate the membranes, if not already ruptured, from the uterine wall as far around as can be reached, care being taken not to loosen the placenta, thus avoiding needless hemorrhage. If the membranes are ruptured, this separation cannot be accomplished.

I believe the early separation of the membranes prevents bleeding and also facilitates the third stage of labor. When rupturing the membranes, rupture them up as far as possible.

Next, make out the exact position of the child, the location and condition of the placenta, the cord, and the character of the amniotic fluid. If one arm is alongside of the body of the child, it should be folded across the chest, or if one hand of the child is alongside the head of the child that also should be brought down and folded across the chest before any attempt is made at turning. In this way no extended arms will occur. I am positive that if this precaution is taken, to fold both arms across the chest, no trouble will ensue from the extended arm. Folding the child's arms across its chest before turning cannot be emphasized too strongly as one of the most important steps in the operation. I worked two years upon this before mentioning it and am convinced of its great value.

Both feet are now brought down and held between the first and middle fingers of the left hand while the right hand gently but firmly presses the head from the outside, up and out of the iliac fossa toward the fundus, and the feet appear at the vulva with little or no traction. When the thighs of the child are flexed upon its abdomen and both feet are at the fundus, the operator, by hooking one finger in the flexed knee, gently brings down one foot to a point opposite the child's face and then brings down the other foot so as to grasp both ankles between the first and middle fingers of his left hand with the palm up and the dorsal surface of his hand going through the hollow of the sacrum. If the feet of the child are crossed at the fundus, they must be unlocked before any attempt is made to bring them down. With the child's feet now exposed at the vulva, gentle traction is made until the knees appear, when the version is complete.

Now time is taken to clean up the field of operation and allow the buttocks of the child to adapt themselves to the pelvis of the mother. From now on, gentle traction is made with the child's toes pointing upward until the groin of the child is under the pubic arch, when the legs of the child are raised upward, the buttocks appear at the vulva, and the baby is allowed to sit upon its mother's perineum. No attempt at haste is made at this time, as the buttocks of the child have a tendency to dilate the birth canal more completely, with no harm resulting to the child. No attempt at traction is made unless the child moves. I should like to have that distinctly understood, because it seems to be the impression in some localities that as soon as you introduce your hand into the uterine cavity and grasp something you are supposed to pull. Now you are not supposed to make traction on these children unless they move; unless they come down through the birth canal.

If at this time any obstruction to the passage of the child arises, care should be taken to locate it; if it be a cord around the legs or between the legs of the child that cannot be released, it should be ligated, clamping the umbilical end of the cord as it appears at the vulva. Should a prolapsed arm cause delay, do not hurry the extraction, but as the fingers of the child appear at the vulva, grasp them with a piece of gauze and make gentle traction along with the descent of the body, delivering the arm as a prolapsed arm.

Next, rotate the crest of the ileum either to the right or left as indicated by the position of the occiput at the beginning, continuing the rotation until the back is straight across the outlet; gentle traction is now made on the child's legs in a direction parallel with the mother's thighs, and not downward toward the floor as

has been advocated, until the scapulae appear at the vulva. I mean, by that, we do not pull down toward the floor, but we make our traction gently and steadily in the direction of the patient's thighs until the angle of the scapula appears at the vulva.

The shoulders are now in a position to be delivered. We no longer go over the shoulder with the finger to deliver the arm, as that occasionally causes a slight paralysis of the child's arm, which disappears in a few days, but by putting the finger against the angle of the scapula the shoulder is pushed under the pubic arch and the scapula, shoulder and humerus appear in the order named. Then with the finger in the bend of the elbow, the child's arm is lifted up across the chest like a pump handle. Supporting the child's body on one hand, the operator now places his fingers upon the angle of the posterior scapula which is rotated under the pubic arch in the same manner, thus delivering both arms as anterior arms and avoiding any contact with the region of the rectum.

Now feel around the neck to see if the cord is twisted or caught; if it is, free it if possible, or cut it. Then with the child's body resting upon the operator's right hand, wait until the mouth and nose appear at the vulva. Do not at this time raise the child's body over the mother's symphysis, as such a procedure usually results in a broken neck.

Time is now taken to strip mucus from the child's mouth and allow for still greater stretching of the vulva, when the head is gradually lifted up over the perineum and delivered as a flexed head. No haste is used at this time. The child is now placed upon its right side upon a sterile receiving blanket on the mother's abdomen, and the cord, if pulsating, allowed to remain uncut for a few minutes—if not pulsating, the cord is clamped twice and cut between the two clamps and a Ziegler cord clamp put on.

The child is then transferred to the nursery. One c.c. pituitrin is given the mother hypodermically after the child leaves the uterus. Pituitrin is never given while the child is in the uterus.

The third stage of labor is completed in the usual manner, by gently pressing the placenta out after it has separated from the uterine wall, after which the birth canal is inspected and any necessary repair made.

The patient is then placed in bed with an abdominal binder and treated as an ordinary postpartum case. No ergot is needed unless the patient has had a long second stage, such as a case seen in consultation would be.

If resuscitation of the child is necessary, as it occasionally is, a small catheter is introduced into the larynx and air blown into the child's lungs, expressing the air by gentle pressure upon the child's chest. Tubbing, swinging the child through the air, or spanking are means of resuscitation that we never use, believing these babies should be treated as patients in shock. They are kept warm and quiet.

CONCLUSIONS

I recommend that this procedure be used only by a competent and properly trained obstetrician. It can be used in a home as well as in a hospital.

No time limit should be put upon the operation, as formerly taught, providing the condition of mother and child are good. Twenty-four minutes have elapsed in our experience from the time the navel appeared until a living child was obtained.

Instruments on the aftercoming head should be used when necessary.

Chloroform is our anesthetic of choice because of its ease of administration, completeness of relaxation obtained and quickness of action. It is less harmful to the child, while the patient recovers more quickly from its effect.

The modified Walcher position and not the extended lithotomy position should be used during the extraction.

Too much emphasis cannot be placed upon the necessity of waiting until complete effacement of the cervix and dilatation of the os have occurred before attempting version. It seems to be understood in some communities that we deliver these women by contract at a certain time on a certain day. If there was ever any more ridiculous idea in the head of a sensible individual I should like to know what it is. We watch these cases and by carefully noting the condition of the lower uterine segment—I prefer to use that term rather than cervix—the degree of dilatation of the os, we are able to tell within a reasonable length of time when this patient can be delivered. We can say to Mrs. Jones or Mrs. Smith, if we see her at 10 o'clock today, and conditions are as I have described, "We will deliver you this afternoon at 3 o'clock." That makes obstetrics somewhat attractive from the operator's point of view. It makes it very satisfactory so far as the mother is concerned, and it does not hurt the child. But this general idea that a woman comes in and we say to her, "We will examine you and deliver you a week from tomorrow at 11 o'clock," is certainly a ridiculous one. I do not know how that idea has gone abroad, but I have been told since I have been in this very distinguished community that that is understood to be so, and I want to correct it.

Again I want to call your attention to the importance of folding the child's arms across its chest before attempting to turn, thus avoiding the difficulties of the extended arm.

Cutting the cord before complete delivery to relieve traction upon the cord is advocated when necessary.

[Discussion of slides.]

Discussion

Chairman Lynch: I will now call on Dr. Charles J. Kickham, chief surgeon, Department of Obstetrics and Gynecology at St. Elizabeth's Hospital, to open the discussion of Dr. Potter's very interesting paper.

Dr. Charles J. Kickham: *Mr. Chairman and Fellow Members*—I think we are all particularly happy to be here today and see Dr. Potter. We have read much about him. He is an old warhorse at these medical conventions. As you see, he is a big man physically, and I am sure he is a big man mentally. Any man is a big man mentally in the profession when he either introduces something new that stands the test or perfects something that some one else has used. Dr. Potter has certainly lived up to those measurements, in my opinion, because he has without any question taught us a tremendous lot about the technique of versions. I suppose he has done more to help us with this technique than any other man, surely, in our own times. His technique, as you listened to him today, will probably help us more in the future.

There were some things in which I was rather interested. I think the first thing was his thorough insistence on the fact that he does not start his version so early as some of us thought he did; in other words, he waits until the cervix is either entirely dilated or easily dilatable.

All his technique is important, especially the folding of the arms across the chest and avoiding those complications that we all feared years ago, the slowness with which he delivers—in other words, the lack of hurry, and impressing upon us the necessity of handling the child with extreme care, and then after delivery of the child his forceful presentation of the fact that these children are in a state of shock, and therefore should be treated with extreme care. I think anybody who does obstetrics will admit that these things have been impressed upon our minds, if not actually inaugurated by Dr. Potter and his associates. Therefore every person in the medical profession owes a great tribute to him for his help in this special field.

Naturally, we all cannot agree with him in every detail. He told me before we started that he did not object to criticism; in other words, we could disagree with him as much as we wished. While, as a moment ago I said, we all appreciate all that he has done, I still feel that the majority of us probably believe that routine versions are a somewhat extreme method of practice. One of the reasons he gave, as I understood him, for his desire to have versions and in advocacy of them, was that this method prevented injury to the soft parts. I can hardly see where a version preceded by an ironing out of the perineum, all taking place within, say, an hour at the very extreme, will injure soft parts less than the normal slow dilatation by the natural forces of labor. Of course, if he meant that a version, the ironing out and the steps of a slow version would injure the soft parts less than a traction with forceps or forceps delivery or something like that, that is different; but in contradistinction to letting the patient dilate her own cervix and dilate her perineum with very low forceps, I can hardly see where that would cause more damage than the procedures incident to a version.

I was rather interested in the fact that he used no antiseptics whatsoever, in the vaginal tract. I know we feel at our hospital that we have reduced our morbidity a great deal by the use of mercurochrome in the last several years. Apparently Dr. Potter does not believe that is necessary, although I have always felt that even with the gentlest manipulation, even in a normal delivery, there is enough injury to the vaginal tissues to allow some of the natural bacteria that are present, or that may work in from the outside, to infect those local areas, and the use of mercurochrome, being an antiseptic that is easily obtained and not too expensive, could be used as a routine, and thus massaged into vaginal tissues during manipulation, thereby possibly preventing some later infections that give us those minor morbid temperatures that worry us at times.

I do feel very strongly with him about the use of deep obstetrical anesthesia if one has to do version, because only in that way can you get that complete relaxation of tissues which will prevent danger later.

I feel that I am correct in saying that most of us in this vicinity believe that chloroform is a rather dangerous drug. Possibly that is Bostonian conservatism, but I think the vast majority of the hospitals and the individuals feel that ether is safer, by and large, than chloroform. I know that many years ago I had a very sad experience with chloroform where it was administered to a patient by an expert anesthetist and the patient died very promptly before any actual manipulation was done · therefore, it was due undoubtedly to the chloroform or something in connection with it,—I mean, it was not anything having to do with the delivery. So I feel I can say to Dr. Potter that we think that ether may be more disagreeable to the patients; they may be a little more sick afterwards, but that it is safer, in our opinion, and therefore we use it as a routine.

I should like Dr. Potter to let us know about the average length of time his patients are in labor from the first to the inception of his version, in other words, during the first stage. Roughly, what is the average length of time, and does he use any type of analgesic during that stage?

In regard to repairs, that is still, of course, a mooted question, but I do feel this way, gentlemen:—Most of us have probably been rather conservative about immediately repairing a lac-

erated perineum and cervix in the past. I know that I see a gentleman in front of me to whom we listened in Worcester when he read a paper about perineal repairs at the time of delivery, achieving remarkable results by his methods. Dr. Potter's results of no infection or no dangerous infection certainly, as I understood him to say, in his cervical repairs, must be taken into consideration.

Three years ago we had a paper on something similar at the Massachusetts Medical Society, and I think at that time most of the men were in favor of letting the cervices alone. That has always been my practice up to comparatively recently, but that was probably due to conservatism on my part; but I feel, after listening to several gentlemen and reading several papers in the last couple of years, we may be ultraconservative, and that therefore with a cervix that shows much erosion, or a perineum that shows very much relaxation, we might be justified in being a little bit more radical and possibly giving those patients a better result.

Whether Dr. Potter did it purposely in order to start a little argument I do not know, but I noticed he did not mention anything about his results in regard to mortality on the babies, or his proportion of cases on which he found it impossible to do a version and what he did in those cases. As I say, I know he does not mind my bringing these things out because this is a comparatively gentlemanly meeting and not such as we have had in the past when he was first fighting for this principle of version. I have great respect for Dr. Potter because he has, singlehanded, shown remarkable courage in taking a stand for version and continuing it all these years despite some pretty hard comments that have been made upon it, and, while I personally do not agree with him that routine version is ideal, I hope he will not feel that we have been unfair in our disagreement.

Thank you, Dr. Potter, for the privilege of hearing your paper.

Dr. Louis E. Phaneuf, Boston: *Mr. Chairman and Gentlemen*—It has been a privilege to hear Dr. Potter's paper. I have had the good fortune of hearing him twice before on the subject and felt that I had learned a great deal about version by following his teachings.

During my residence in obstetrics a great deal of discussion took place at medical meetings on the question of high forceps versus version. These discussions were usually rather heated. Dr. Potter has taken up version when it was almost forgotten and, by improving the technique and making it safer, has been responsible, to a large degree, for the use of version today rather than high forceps. At first I read Dr. Potter's book, trying to learn the technique of his method, and afterward I saw slides similar to what he has shown today; but I feel that I never learned his technique until I saw him do his versions. A year ago last winter I saw him do three of them in one afternoon. There are many small points which are missed in a discussion of this type but which one gets readily by seeing Dr. Potter at his work. It is masterly work.

Dr. Potter has mentioned the use of Piper forceps for the aftercoming head. I believe this is the next important contribution in version. I am convinced that I have saved a great many babies by the use of these forceps, as they overcome severe traction on the child's neck in delivering the head, thereby preventing spinal and other injuries.

I have looked up my records from October 18, 1919 to May 27, 1932 and have found that during this period I have done 372 versions. The indications for these versions, in some, were disproportion between the fetal head and the pelvis and in others because the condition of the mother necessitated immediate delivery. They were not done as routine operations. In this group there were four maternal deaths, or 1 per cent. The causes of death in the mothers were as follows:

(1) The patient, a colored woman, was seven months pregnant. She had a complete placenta previa and was suffering from asthma. She died two days after delivery during an asthmatic attack.

(2) The patient was seven months pregnant with a ruptured appendix and general peritonitis. She had a cecostomy and drainage of the peritoneal cavity performed and two days later was delivered. The baby was born alive but died within a few hours and the mother died the same day as a result of peritonitis.

(3) The patient had toxemia of pregnancy. Her blood pressure was 214/140. She died as a result of the toxemia.

(4) The patient was delivered on April 26, 1931, and died from an abscess of the left lung on May 23, 1931.

This mortality of one per cent cannot be charged to the operation since these women were extremely ill and probably would have died no matter how they were delivered.

In this group I find there were 30 deaths among infants or eight per cent. Fifteen of these deaths were due to prematurity. In five instances, where the mothers were admitted with central placenta previas or low implantation of the placenta, the babies did not survive. There were six macerated fetus, one anencephalic monster, two intracranial hemorrhages and one death from asphyxia in utero.

The operation does carry a certain mortality. In the hands of Dr. Potter it is extremely low. In his large series of 1,100 or more cases a year the mortality is hardly more than one would find in normal deliveries.

I feel indebted to Dr. Potter for what he has taught me in the performance of version.

CHAIRMAN LYNCH: Does anybody else care to discuss Dr. Potter's paper, or is there any question that anybody would like to ask Dr. Potter? Dr. Potter, do you want to close the discussion?

DR. POTTER: *Mr. Chairman and Gentlemen*—It is very good of you to handle this subject so well, carefully and cleanly. I do not want to advocate doing version in every case, and I do not want to lay down any indications for you to follow. What I want to do is to establish a technique that will stand and be useful to the man who wants to do version. It is the technique that is worthwhile, and, if the technique is thoroughly understood, the indications for its use will follow.

This has always been my argument. I do not think that every man who graduates from a medical college ought to do version in every case he sees. I do not believe that at all, and I have never advocated it. I have said pretty harsh things about teachers of obstetrics, and I have not anything to retract. They do not teach operative obstetrics as I think it should be taught, and I firmly believe that, perhaps not in my day or your day but in days to come, there will be a chair of Operative Obstetrics in every well-recognized medical school in the country. You do not find the surgeon sending men out without seeing the inside of an abdominal cavity, and yet how many graduates in medicine today are privileged to see the inside of the abdominal cavity of a pregnant woman? Now just think of it! It would do the surgeons a lot of good if they could see the inside of the abdominal cavity of a pregnant woman at term. It is different from its condition which is found when they open a woman for appendectomy or gall bladder.

The technique of version should be taught. It should be taught in such a way that it will be remembered, and then let the man himself decide on its indications. I cannot tell a man around the corner that has a woman in labor and she has been in labor three days, to do a version. The time has gone by, in my judgment, for version in most of those cases. We are talking about elective version. I am talking about doing version when I am just about two steps ahead of the hounds; but when you have a woman in labor three or four days and you have a uterus that is stretched, distended, and a baby that is squeezed, that is a different proposition. I do not want to advocate version in all those cases.

As I say, we do not do versions in every case. We have forceps, and we have tied up a lot of money needlessly in forceps just to have them. My son has more money invested in forceps than I have invested in most anything else, and he likes them; but I have a long rubber glove and a left hand and a bottle of choloroform in the hands of a competent man, and I can get away with a thing that these forceps operatives fall down on—but that is their business, not mine.

We do a good many sections, no question about that, just as we do a good many versions. First they criticize us for versions, and now they criticize us for sections. *They have not* criticized me for episiotomies because I have never done one. I am glad I never have.

Now somebody has said that the routine version was damaging to the tissue. I think perhaps it is, sometimes; but I think under proper conditions, under proper preparation of the patient for delivery, that your version and extraction will save tissues and save the mother's soft parts where they would otherwise be damaged. I mean, by that, the proper position of the patient, the proper preparation of her vaginal canal, and the proper degree of anesthesia.

I do not want you to think that I do not believe thoroughly in asepsis, but I do think that when you paint the abdomen of a woman up under her breasts and on the inside of her thighs to her knees with iodine or picric acid or whatever you use, it is all nonsense. I am not talking to medical students: I am talking to you men who have been out. You can carefully wash off the parts by the use of soap and water and introduce your hand into that vaginal canal and leave her without any fear of infection whatsoever. While mercurochrome may be efficient, it destroys more linen than anything I know of. I never saw anything discolor linen the way mercurochrome does.

It is a funny thing but I did not realize that this community is antagonistic to chloroform, because chloroform is a very sensible drug. It is easy to give, it is not dangerous to use, it is pleasant to take, and it is a beautiful anesthetic. It does less harm to the babies. They wake up more quickly, and the degree of relaxation is better. We have not found it dangerous. I have a man who has worked with me for over 25 years with chloroform. We have had one mortality, and that woman had malignancy in the thyroid gland. She did not have a healthy organ in her body and she died, but not from chloroform.

As to the average length of the first stage, that varies with the individual, of course. We have a rule in our office of not sending a patient into the hospital until we have seen her; that is, we do not send patients in, the first thing Monday morning and deliver them on Wednesday afternoon. That means a long siege for the hospital and a long siege for the woman. We see the patient in labor. She comes to our office. As soon as she starts in labor she telephones us that something has happened, and we say, "Come on down to the office." We examine these patients in the office vaginally. My office is just as well equipped as any hospital, and we examine those

patients vaginally in the office before they go to the hospital, and if they are not ready for delivery or will be ready for delivery within a reasonable length of time, we send them away, that is, we send them out again and tell them to go home, go to the movies or do anything they like. We make very little of the first stage of labor, and that I think is important in the handling of any case. If we have to give anything to the patient in the first stage we give her a quarter of a grain of morphine, but we do not like to deliver this woman within three or four hours after the morphine has been given because of its effect on the child. Our babies in chloroform anesthetic are not narcotized. We give no hypodermics in Caesarean sections because we do not want to have a narcotized baby.

The first stage varies from six to eight or ten hours.

These repairs of the birth canal I think are important. I am inclined to think we should attend to them right away. I think it is important to explore the canal. I have explored it time after time. There is another good reason. There is always the fellow lurking around somewhere in the bushes three or four years later who is going to examine this patient, and if she has not been repaired he is going to publish the fact generally in her family that she should have been repaired. That is an unpleasant situation that confronts everybody. You fellows have seen such in your time, and you had better repair your birth canals early.

Our fetal mortality has been 2.3 per cent. I think it is less now than that. I do not know why but I think the babies are better. I think, owing to the prenatal care these women get all over the country, we are getting bigger and better babies, and we are getting babies which stand more, the mothers are better, and I think the prenatal care has worked a great deal in our favor.

Fetal mortality, in my judgment, has more to do with the umbilical cord than with the method of delivery. Traction on the cord will cause the death of a baby. A cord that is pressed on at the brim might cause death to the baby, and the fetal mortality is laid up to the method of delivery. Now, then, think of that. If the baby goes through the brim, the cord is pressed on, there is no pulsation, and if that child is allowed to remain there three, four, five or six hours, your baby is going to suffer.

A question is asked when not to do version. I think if I did not believe in version I would never do one, to start with. If I wanted to sit all day at a bedside and wait, I would do that. If I wanted to relieve the patient and relieve the baby and get through and not make obstetrics a burdensome process, then I would go on and do versions, because it is quicker, it is easier, and it is safer in the hand of a competent man than any other method of obstetrics I know, and it certainly leaves the birth canal in much better shape than forceps and leaves your babies in better shape than instruments.

I want to thank Dr. Phaneuf for what he has said. I do not know of anything more to offer, but if any more questions are presented, I will be glad to discuss them.

CHAIRMAN LYNCH: I am sure we are all very grateful to Dr. Potter for his very excellent paper and interesting discussion.

The next matter on our program is the report of the Committee on a Survey of the Incidence of Puerperal Septicemia in Massachusetts. That was to have been given by Dr. Charles E. Mongan, of Somerville, but unfortunately he is ill, and his report will appear in the *New England Journal of Medicine**.

The next article is "Routine Prophylactic Injection of Whole Blood in the New-Born—a Report of 800 Cases," to be read by Dr. Roy J. Heffernan, of Boston.

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ROUTINE PROPHYLACTIC INJECTION OF WHOLE BLOOD IN THE NEW-BORN. A REPORT OF 800 CASES*

BY ROY J. HEFFERNAN, M.D.†

THE neonatal death-rate has not improved in proportion to the advancement of obstetrics during the past twenty years. An analysis of all available statistics shows that for every 1000 babies born alive, about 30 die during the first 10 days.

Medical literature for the past decade abounds with reports of series of postmortem examinations, which prove conclusively that intracranial hemorrhage is the chief cause of these deaths in the new-born.

Fischer[1] examined the brains of 500 infants and found hemorrhages visible to the naked eye in 65%.

Saenger[2] demonstrated 73 intracranial hemorrhages in 100 autopsies.

Cruickshank[3] reported intracranial bleeding in 65.5% of 200 examinations.

Irving[4] reported 73 intracranial hemorrhages in 182 autopsies.

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Bleeding within the cranial cavity is, of course, most important, but hemorrhages in the new-born are not confined to this region.

Capper[5] found extravasations of blood of varying sizes in other parts of the body in over one-half of 151 neonatal autopsies. Hemorrhages were disclosed in the lungs, gastro-intestinal tract, spleen, under the capsule of the liver and in the skin.

The frequency of neonatal bleeding, however, becomes even more impressive when it is realized that only a small percentage of babies sustaining such hemorrhages die. Sharpe and Maclaire[6] performed 400 routine consecutive spinal punctures on new-born infants. Nine per cent showed bloody or blood-tinged fluid. When we consider that supratentorial hemorrhage, unless massive, may not show blood in the spinal fluid, the incidence of intracranial bleeding, of some degree, in all new-born babies may be conservatively estimated at 20 per cent.

The deleterious after-effects which frequently occur in infants who survive these hemorrhages have been well known since the classic papers of Little[7], published in 1843 and 1862, describing the definite relation between them and chronic cerebral-spastic paralysis.

Neonatal hemorrhages are usually broadly classified as traumatic and spontaneous. The effect of severe trauma in producing intracranial hemorrhage is too well known to require any elaboration here. Delivery through an incompletely dilated cervix, difficult high forceps operations, faulty applications of the forceps, improper traction and pressure in breech extractions, the injudicious use of pituitary extract—in short anything which subjects the delicate fetal tissues to abnormal stress and strain, usually causes tears of the falx cerebri and tentorium cerebelli, rupture of blood vessels and hemorrhage.

If these babies survive delivery they show signs of intracranial injury shortly after birth and usually die in a few hours. Gross damage will be found on postmortem examination, especially if the improved technique, outlined by Beneke[8] is followed, whereby the cerebral lobes are removed, so that the falx and tentorium may be examined in situ.

Obviously the only prevention of these neonatal deaths is better obstetrics. The well-known dictum of De Lee, "Non vi, sed arte", should be our guiding thought at all times while delivering a baby.

Today, however, we are chiefly concerned with that large number of infants who develop intracranial and occasionally other hemorrhages, following the relatively mild strain of an easy forceps operation or even a normal, spontaneous delivery.

New light was thrown on such cases by the excellent work of Rodda[9] who observed at necropsy that the blood of many infants was fluid or showed but a slight tendency to coagulate. He then tested the coagulation and bleeding time of a large series of new-born infants. His observations were as follows:

1. The average coagulation time in normal infants is 7 minutes; the average bleeding time 3½ minutes.
2. Prolongation of coagulation and bleeding times from the first day, increasing on the second, third, fourth and reaching a maximum on the fifth day, was observed in the majority of cases. It is significant that this coincides with the age incidence of cerebral hemorrhage and hemorrhagic disease.
3. Evidence of hemorrhage usually occurred when a prolonged bleeding time accompanied a prolonged coagulation time.
4. Delayed times were favorably affected by the administration of whole blood.

Beveridge[10] tested the blood of another group of infants and reported similar findings.

Griffith and Mitchell[11] state: "In the first week of life there is normally a prolonged coagulation and bleeding time and in hemorrhagic disease the prolongation is somewhat greater."

Lucas[12] and his co-workers have demonstrated that this is due to a diminution in the prothrombin element during the first days of life.

Impressed by these observations the writer began four years ago the routine administration of whole blood to every baby, immediately after delivery, whether normal or operative. The method is simple. The mother's elbow is scrubbed with alcohol and the baby's infrascapular regions are rubbed with ether and painted with 3½ per cent iodine. With a glass syringe 20 c.c. of blood is withdrawn from a vein in the mother's elbow and injected, 10 c.c. on each side, into the loose tissues under the baby's scapulae. The needle puncture is sealed with collodion and a gauze dressing applied.

By January 10, 1932, the procedure had been used in 200 private cases. There were no harmful effects in any case that could be attributed to the injected blood. No suppuration of the slightest degree and no anaphylactic reactions were observed. The blood is absorbed in from 24 to 36 hours.

The methods of delivery were as follows:

Normal vertex	79
Low forceps	385
Mid forceps	151
High forceps	26
Version and breech extraction	53
Breech extraction	38
Caesarean section (low, transverse)	68
	800

The toxemias of pregnancy and prematurity are predisposing causes of neonatal hemorrhage. There were 148 patients with toxemia, classified as follows:

Mild	81
Moderate	43
Severe (requiring induction of labor or Caesarean section)	24

There were 46 premature babies.

The large percentage of instrumental deliveries is due partly to the fact that 195 patients were delivered in consultation because of some form of dystocia and also to the writer's belief that a low forceps and episiotomy, in trained hands, lessens the strain of delivery to mother and baby.

There was one maternal death, a para III following a normal, vertex delivery, during a hospital epidemic of streptococcus septicemia. There were 5 stillborn infants and 15 deaths during the first 10 days, making a gross fetal and neonatal mortality of 2.5 per cent. Seven of these were born prior to the seventh month of pregnancy, making a corrected neonatal mortality of 8 cases, or 1 per cent. A brief description of these 8 cases follows:

No. 7489. Elderly primipara, 8 months pregnant, severe preëclamptic toxemia. Caesarean, local anesthesia. Weight 3 lbs. 14 ozs. Feeble cry, color poor, died in 8 hours.

No. 7674. Para I. Seen in consultation after unsuccessful attempt at high forceps. Large baby, justominor pelvis. Fetal heart 138. Low cervical section, weight 8 lbs. 4 ozs., depression from forceps blade right parietal region. Color poor, shrill cry, died in 6 hours.

No. 9066. Para I. Central placental previa at term. Caesarean section. Anencephalic monster, expired in 20 minutes.

No. 9222. Para I. 8 months pregnant. Nephritis, sudden anuria. Caesarean section, local anesthesia. Weight 3 lbs. 1 oz. Feeble, spells of cyanosis, persistent vomiting. Died on the third day.

No. 9991. Para I. Version and breech extraction for persistent L. O. P. and hydrocephalus. Weight 8 lbs. 4¼ ozs. Reacted well but showed moderate hydrocephalus and absence of clavicles (father of child had persisting anterior fontanelle, moderate hydrocephalus and congenital absence of clavicles). Convulsions on eighth day. Lumbar puncture showed clear fluid under pressure. Death on tenth day. Diagnosis: Cleido-cranio-dysostosis.

No. 10,100. Para I. Seen in consultation after 36 hours of labor, membranes ruptured 22 hours. Six vaginal examinations. Large woman with funnel pelvis. Large baby, L. O. T., long caput visible at introitus. Fetal heart 124, meconium-stained discharge. Deep bilateral episiotomy, mid-forceps, firm traction required. Baby weighed 9 lbs. 11 ozs. Resuscitated with difficulty; pallor, shrill cry, convulsions, death in eight hours.

No. 10,651. Para IV. Premature, second twin. Easy version and breech extraction. Weight 3 lbs. 11 ozs. Feeble, refused nourishment, expired second day.

No. 10,731. Elderly primipara. Severe preëclamptic toxemia 8½ months pregnant. Myomectomy three years previously. Caesarean section, local anesthesia. Weight 3 lbs. 4 ozs., feeble, color poor, occasionally cyanotic, died in 16 hours.

Four babies recovered after developing symptoms of sufficient severity to warrant a diagnosis of intracranial hemorrhage. The history of these is as follows:

No. 8688. Para I. 18 hours labor, persistent R. O. P. Manual rotation followed by mid-forceps and episiotomy. Weight 9 lbs. 8 ozs. Convulsions 24 hours later, no paralysis, slight bulging fontanelle. Lumbar puncture showed clear fluid under increased pressure. Gradual improvement; reported normal two years later.

No. 8942. Para I. 12 hours labor. Easy low forceps, episiotomy. Weight 7 lbs. 12 ozs. On second day persistent vomiting, temp. 102°, weak cry, attacks cyanosis, tenseness of fontanelle. No paralysis or spasticity. Lumbar puncture; clear fluid, no increased pressure. Condition improved to normal five days later. At 12 months reported perfectly well.

No. 9451. Para II. 13 hours labor, persistent R. O. P. Version and breech extraction, Piper forceps to after-coming head. Six hours later, moaning, twitching of eyes and mouth, vomited once, one attack cyanosis. Fontanelle tense, no paralysis or spasticity. Lumbar puncture, excess fluid under pressure. Xanthochromic, microscopic examination showed many r. b. c. Lumbar puncture relieved all symptoms, left hospital apparently normal and six months later is a fine healthy child.

No. 9733. Para I. Age 42, L. O. P. non-engagement after 16 hours test of labor, low transverse Caesarean section, ether anesthesia. Weight 7 lbs. 13 ozs. After 48 hours, pallor with attacks of cyanosis, occasional slight convulsions, vomiting, fontanelle bulging, no paralysis. Lumbar puncture, clear fluid under pressure. Symptoms relieved, gradual improvement. Twelve months later, pediatrician reports baby is apparently perfectly normal.

An analysis of all the cases reported above reveals an extremely low incidence of intracranial hemorrhage in normal full-term infants not subjected to severe trauma.

There was no case of hemorrhage disease of the new-born in this series. Since completing this report the writer has seen one mild case of this disease. (No. 11,482 delivered, March 23, 1932) which recovered promptly following the second injection of whole blood.

CONCLUSIONS

1. Intracranial hemorrhage is responsible, each year, for a large number of neonatal deaths.
2. Hemorrhages resulting from severe trauma can only be prevented by better obstetrics.
3. Infants subjected to mild trauma during delivery develop intracranial hemorrhage because a prolonged coagulation and bleeding time predisposes them to bleed.
4. The routine administration of whole blood is a harmless procedure and seems to be of definite value in reducing the incidence of intracranial hemorrhage and other hemorrhagic conditions of the new-born.

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Discussion

Chairman Lynch: The discussion of Dr. Heffernan's paper was to have been opened by Dr. John E. Talbot, of Worcester. I have just received a telegram from Dr. Talbot saying that an accident prevents his attendance. Fortunately, I have a copy of his discussion, which I will now read.

Dr. John E. Talbot, Worcester: Nothing is more upsetting than to conduct an apparently easy delivery and later find that the baby is showing signs of intracranial hemorrhage. If the case was a normal delivery, you question your judgment in allowing the patient to deliver the baby herself. If it follows an easy low forceps you wonder just what you did to cause the hemorrhage. Such cases must occur in everyone's experience. No one, so far as I know, has offered anything to combat this situation until now. It seems to me that Dr. Heffernan's suggestion of giving blood to the new-born infant has been very logically presented and should, if universally carried out, prevent some of the tragedies of obstetrics.

The almost total absence of hemorrhagic disease in this series of 800 cases is impressive. It does not seem possible that this can be a coincidence. However, in my experience hemorrhagic disease has an increased incidence in association with toxemia of pregnancy. It has also been my experience to see very much less toxemia of pregnancy and hemorrhagic disease in the last five years than in the five years preceding. I remember one March, I think it was 1921, when I had to inject blood into seven consecutive private cases and at that time there was a similar increase in the incidence of hemorrhagic disease in the other hospitals in Worcester and among the babies delivered in the homes. Whether routine early injections of blood will prevent hemorrhagic disease entirely, is a question. Undoubtedly it would be of real value, because early treatment is one of the essentials of successful treatment and this method of treatment has given a very high percentage of cures.

It has been my custom to give subcutaneous injections of blood promptly after delivery in cases where the baby was premature, and was born cyanotic, where there has been a discharge of meconium from the uterus following the birth and in all cases where the delivery was at all strenuous. Injections have been given, too, if the mothers have shown signs of toxemia, mild or severe. I have always used the father's blood for fear of causing undue worry in the mother's mind, which might attend the idea that her baby had needed a transfusion. Although I cannot give any statistics, I firmly believe in the efficiency of this method of treatment. Injections of blood coupled with lumbar puncture have also worked well in cases where the symptoms of intracranial hemorrhage have made themselves manifest. With this experience I am most receptive to Dr. Heffernan's suggestion of making the injections of blood a routine procedure.

Besides offering a prophylactic method of treatment for hemorrhagic conditions in the new-born, Dr. Heffernan has brought out one other prophylactic point which I believe is most important and cannot be emphasized too much. That is the need, the necessity for better obstetrics.

In this day and age, great emphasis is laid on saving the mother pain. When this emphasis is carried so far that it leads the obstetrical attendant to operate through a partially dilated cervix, in order to save the patient the necessary pain to bring about full dilatation normally, we have a perversion of good intentions in the extreme. There are a great many cases where an attempt to complete dilatation manually is conducted with the above excuse. In many such cases the baby is dragged through an incompletely dilated cervix, with the attendant unnecessary lacerations of the cervix, and risk of intracranial hemorrhage in the baby. If we could force everyone who assumes the responsibility of delivering a baby to answer this question, "Would I want another doctor to impose this risk upon my baby or my wife, sister or mother?" we would have much better obstetrics.

Chairman Lynch: Is there anybody who would like to comment on Dr. Heffernan's paper?

Dr. S. C. Gwynne, Worcester: *Mr. Chairman*—I would like to ask whether he has seen those hemorrhagic diseases of the new-born which did not respond to subcutaneous injection of blood but that did respond to intravenous.

Dr. E. P. Starbird, Dorchester: I would like

to ask if there is any way of anticipating these hemorrhages from the point of view of treating a mother. I have in mind a case that had hemorrhages occurring in three consecutive babies. The first one occurred after the delivery—I did not deliver that one—and the child died. The second had hemorrhage from the bowels. I delivered that child and treated it with the father's blood; and the third probably died during the first stage of labor. I watched it die with the stethoscope. It occurred to me to ask the question whether treatment of the mother might have anticipated what I had good reason to believe would happen in this third baby.

SPEAKER FROM THE FLOOR: Does Dr. Heffernan use blood from the mother who is either mildly toxic or severely toxic?

DR. HEFFERNAN: Mildly toxic, but not severely.

CHAIRMAN LYNCH: I will ask Dr. Heffernan to close the discussion.

DR. HEFFERNAN: In answer to the question about cases of hemorrhagic disease of the newborn which did not respond to subcutaneous injection of whole blood, as my report showed I have not seen many cases of hemorrhagic disease during the past four years. Prior to that time I used to see it rather frequently, but I never saw a case which did not respond to repeated subcutaneous injections of whole blood. I have read about them, and I am sure they do occur, and that some of the more severe cases do need transfusion, but it has been my good fortune to have the babies respond after three, four or five injections of whole blood, so that I, personally, have not seen a baby that required transfusion to correct the hemorrhagic condition.

In answer to the question about treating the mother to prevent hemorrhagic disease of the new-born, I believe that is not feasible because hemorrhagic disease of the new-born has been shown to be not hereditary. Some thought was given for a while to calcium metabolism as a cause of hemorrhagic conditions in the newborn, i.e., a deficiency of calcium, and it was hoped that the ingestion of proper amounts of calcium on the part of the mother would help in preventing hemorrhagic conditions; but it has been found by Lucas and others that calcium has very little to do with hemorrhagic conditions in the new-born, and that as a rule the condition is due to deficiency of prothrombin, which can be supplied in the child, under our present knowledge, only by the injection of whole blood, adult blood.

In patients with severe toxemia the blood is taken either from the surgeon, the assistant, the nurse, or some other person. I have always felt that if there is severe toxemia in the mother's blood we should not give it to the baby.

Dr. Talbot mentioned the fact that he uses the husband's blood. I have done that in only a few cases, simply because the mother is available. She is right there, she is under ether, and it is much simpler to scrub her arm, take the blood and inject it in the child and say nothing about it to anybody. Frequently the next day she will notice she has a black and blue mark on her elbow and remark about it, and we will say we have taken a little blood and given it to the baby, and it is a good thing to do, and that is all, whereas if we send for the husband to come in it disturbs them both more than if we take it from the mother.

Dr. Talbot mentioned that he had been injecting blood in babies from patients with toxemia, and I believe he said in babies after operative deliveries. I am very glad to learn he has been doing that because it would help certain babies who would otherwise develop intracranial hemorrhage or other hemorrhagic conditions. However, if the treatment is a good one to use in babies that are toxic and have been subjected to operative deliveries, I believe it is a good procedure to use in every case.

I thank you.

CHAIRMAN LYNCH: The concluding article on our program is that of Dr. George H. Bigelow, Massachusetts Commissioner of Public Health, entitled, "What Can the State Department of Public Health Do To Aid in the Program of this Section to Improve the Practice of Obstetrics?" Dr. Bigelow.

WHAT CAN THE STATE DEPARTMENT OF PUBLIC HEALTH DO TO AID IN THE PROGRAM OF THIS SECTION TO IMPROVE THE PRACTICE OF OBSTETRICS?*

BY GEORGE H. BIGELOW, M.D.†

WITH the limited time at the disposal of the Section at the annual meetings and with the many important matters pressing for consideration it is a real distinction to be accorded any of that time. I must utilize it to the best advantage. It seems particularly fortunate that this subject should be considered, since in the broad field of obstetrics there has been more misunderstanding between practitioners and health officers than in any other phase of medicine. As the only hope of removing any misunderstanding is through a frank meeting

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†Bigelow—Commissioner of Public Health for Massachusetts. For record and address of author see "This Week's Issue," page 329.

together, this opportunity is fraught with signal significance.

At the meeting of your general committee, to which I was courteously invited, one of the members of the committee afterward, when it was discussed whether it was worthwhile to give me any time, said, "Well, put him on last because our programs are too long anyway, and nobody will be there, and it won't make any difference what he says."

I take it that the Section is not only interested in improving the purely technical aspects of obstetrics among the profession, but also of disseminating knowledge as to the importance of the prenatal and postnatal periods to the end that crippling and death among mothers and infants may be reduced to a minimum. This is, of course, precisely the objective of health officers and for that matter the general public. Similarity of aims is a step toward understanding, but perhaps not too big a step. Farmers quite universally agree on what they want in regard to milk, but there is a great babble of voices as to how to get it. Most of the world sincerely desires peace, but how? Through limitation of armaments, the League of Nations, the economic boycott, more or less tariffs, more or less immigration, etc.? It is often not "what" but "how" that gives the headaches.

Your Section has, perhaps, been more active than any other in the State Society in taking steps to build up standards and to keep its members informed of progress. Of course, on the basis of an informed progressive profession any progress in cure and prevention in any field of medicine must be built. As I understand it, your program has been based on section meetings, addresses before local societies for which many of your members have given generously of their time, a column in the *Journal* and studies conducted with the coöperation of your members. Certainly such a program deserves the heartiest appreciation from the public who are the beneficiaries.

Perhaps the principal aim of the Department of Public Health in this field is to impress on the women of the State the cardinal importance of placing themselves under competent medical supervision as early as possible in pregnancy. As a reason for this and as a supplement to it, we attempt to inform the public of the critical importance of early detection of abnormalities which may threaten the life of the mother or her fetus, and the significance of diet and other aspects of prenatal hygiene which have such an important relation to her well-being and that of her prospective offspring. There are some who think that prenatal hygiene is a lot of "hooey". I was particularly pleased to hear Dr. Potter say that he thought perhaps in part due to the more extensive use of prenatal hygiene we were getting bigger and better babies. I do not know that bigger babies are synonymous with better, but perhaps so. Such simple knowledge we feel should be had by all educated women, which should mean all women since our government is postulated on compulsory free public education.

We are also much interested in educational programs for the professions involved, i.e., medicine, nursing and social service, and in any agreements as to uniform practices, since much confusion and some irritation frequently result if the public is led to expect one thing and those who are giving the service strive to give another. I think that perhaps right here is the cause of much of the lost effort and misunderstanding in the past.

Now how can these two interests supplement each other? Through the closest possible coöperation. Already your Chairman has appointed a Committee with which we have met, and I hope the Section may appoint a permanent advisory obstetrical committee for us. We have had the benefit in the last couple of years of advice from the rather young Neisserian Medical Society of Massachusetts. So far as I know, it is the only organization of physicians in the world that is devoting itself to the problems of acute gonorrhea. Usually you go to a medical meeting where there is a symposium on syphilis and somebody says, "We must remember that gonorrhea is an important disease," and they shake their heads and adjourn, or if they talk about gonorrhea they usually talk about surgical conditions. We now have in Massachusetts a group of more than 100 men who are interested in the problems of acute gonorrhea. I have had the opportunity of going over in detail the program of the Department in regard to this disease. We no more think of any innovation or change in that program without the fullest discussion with this group than we think of jumping off the roof; and it seems to me it is in such groups that we can have the utmost confidence for sane procedures, and it is a great assurance to you that we will be as little "half-baked" as possible. Through this may be devised ways in which we can assist in educational opportunities for physicians in this field as we have in cancer through the Cancer Committee of the Society. Also this Advisory Committee can help us in organizing obstetrical institutes for nurses, which are much needed. Even more important is working out with this Committee, and perhaps a similar one from the Pediatrics Section, a program as to the services that should be available in any community in the prenatal, obstetrical and postnatal fields with an outline of what services nursing organizations should be expected to give. As it is now, we are constantly asked for advice by nursing organizations, and we are very much embarrassed in that we have no professionally acceptable program to give them in their communities. Such a program, then, which is worked out and accepted by representatives of the Obstetric and

Pediatric Sections which we can give to local hospitals, local visiting nursing associations, and boards of health, or to any of the varied groups interested in this object, would be helpful. Such a program approved by this Section, put out by the Department and distributed widely to physicians, boards of health, visiting nursing associations and the like should bring about a uniformity of method and objective which would go far to reduce the confusion resulting from misunderstanding as to how ends should be reached in this field. Further, through advice on new printed material and the revision of old material put out by the Department such a Committee can be a great help to us and also to the public. Finally the Committee can from time to time suggest, direct and edit studies on which wise modification of any program should be based. For instance, there is wide diversity in the administrative practice among hospitals in regard to obstetrical cases. There are some practices which must certainly be more satisfactory than others. These could well be ascertained and encouraged.

I look forward, then, with great satisfaction to increased harmony and real progress in this vitally important field through the appointment of a professional committee vested with the authority of this Section to advise us. On the one hand it will give you a sense of security as to the professional soundness of whatever may be worked out and that no ill-considered or unwise steps will be taken. From our side, in addition to all the advantages that have been enumerated it will give us a group of your confreres to interpret to you whatever program may be determined.

Report of Nominating Committee

The Chairman during the session appointed the following Nominating Committee: Alonzo K. Paine, Boston; Louis E. Phaneuf, Boston; Abraham S. Troupin, Brookline.

The Committee retired and returned with the following nominations:

For Chairman, Frank A. Pemberton, Boston.
For Secretary, Joseph W. O'Connor, Boston.

Upon motion, duly made and seconded, it was

Voted: To accept said report, and that the Secretary cast one ballot for said nominees.

The Secretary having cast the ballot as directed, the Chairman declared Frank A. Pemberton and Joseph W. O'Connor duly elected to their respective offices for the ensuing year.

Meeting adjourned.

A REPORT OF THE COMMITTEE FROM THE SECTION OF OBSTETRICS AND GYNECOLOGY ON A SURVEY OF "THE INCIDENCE OF PUERPERAL SEPTICEMIA IN MASSACHUSETTS DURING A FIVE-YEAR PERIOD"

THE PURPOSE OF THE COMMITTEE

THIS committee was authorized in 1926 by a resolution passed in this Section requesting a study of the incidence of septicemia in Massachusetts over a five-year period. It was thought that valuable information might be obtained from such a study. Two progressive reports have been made to the Section and on account of a change of policy, which will be referred to later, it seems best that the present shall be a final one.

STATISTICS

Governmental statistics do not give us much help in the work of reducing maternal mortality and little or no help in the work of reducing the incidence of maternal morbidity aside from purely statistical information. Each of the forty-eight states in the Union has an official whose duty it is to collect and tabulate vital statistics. Oftentimes these statistics are influenced by the personal interpretation of the official who collects and tabulates.

We must also keep in mind that the statistician often has a difficult task in interpreting the death certificate of the physician who makes a return of death. At times the physician is too prolix in describing causes of death, at other times he is, perhaps, too laconic and does not tell the whole story.

From the study of innumerable death returns one might infer that the writing of a death return in plain medical language is a lost art. Too much criticism therefore must not be visited upon the official who tabulated these returns. It might not be out of place in this report to suggest to the teachers of medicine that a course be given in the last year of student medical education in the proper way of writing a death certificate.

PUERPERAL SEPTICEMIA

It might be well to ask ourselves the meaning of the phrase "Puerperal Septicemia." Willis, the eminent English anatomist and physician, was the first in 1660 to define and differentiate puerperal septicemias. Prior to his work on the subject, the disease which we now call puerperal septicemia was classified among the fevers, sometimes known as metritis or peritonitis. From 1660 until the fourth decade of the nineteenth century no outstanding work was done on the cause and prevention of puerperal

septicemia until Holmes of Boston, in 1843, and Semmelweiss of Vienna, in 1847, published their famous works on puerperal septicemia showing that the disease was spread by contagion.

The introduction of aseptic and antiseptic methods into the practice of medicine changed our whole attitude relating to cause, prophylaxis, and treatment of puerperal septicemia.

The Ministry of Health of the English Government published an exhaustive report in 1930 on maternal mortality and morbidity.

This report shows the value of the work of the bacteriologist and the bio-chemist in the work of investigating the cause and treatment of puerperal septicemia.

The bacteriologist tells us that the hemolytic streptococci responsible for the production of puerperal fever belong to the streptococci pyogenes group, in which group are included the scarlatinal septicemia, tonsillitis, and erysipelas streptococci, so that if our study is to be an exhaustive and scientific one we must call on the obstetrician, the bacteriologist and the bio-chemist for aid and coöperation.

This Section has not the machinery or the money for pursuing such a study but it does recommend that this study, instituted by the Section, be carried on with the assistance and aid of the New England Obstetrical and Gynecological Society, which can command personal and financial means for the performance of such work.

INTEREST IN PUERPERAL SEPTICEMIA

The recent investigation of the British Ministry of Health indicates the interest of one government at least. The innumerable articles which have appeared in lay and medical periodicals during the past year in all languages and in all countries indicate the intense interest in the subject under consideration. The committee wishes to call the attention of the Section to the excellent article by Dr. W. R. Logan entitled "The Relation of the Vaginal Reaction and Flora During Pregnancy to the Occurrence of Puerperal Sepsis," which appeared in *J. Obst. & Gynec. Brit. Emp.*, 1931, XXXVIII, 788.

This article was reviewed in *Surgery, Gynecology & Obstetrics* in May, 1932. The author shows how necessary it is that the bacteriologist should be used by the obstetrician as an ally in the study of puerperal sepsis. The writer emphasizes that many factors are involved in the introduction of puerperal sepsis and it is only when one factor is so predominant as to overshadow all others as in epidemics due to hemolytic streptococci that the problem can be simplified; therefore, at the present time it is still impossible to determine with any certainty why one woman develops puerperal sepsis while another does not. Logan agrees with the view that the time of danger from the introduction of organisms into the uterus from without is during labor and the first few days after labor. Perhaps one in despair might say "the problem is still with us and no improvement has been made". A calmer view of the situation shows that great progress has been made in the reduction of the incidence of puerperal septicemia. No longer are hospitals closed to appease the wrath of a riotous populace as has happened in days gone by. No longer does any practitioner leave a trail of puerperal septicemia after administering to parturient women as happened in years not long past. Nor have there been any serious epidemics of puerperal septicemia in any well-conducted hospital recently.

The question often arises, "Is puerperal septicemia increasing in modern times and under our present-day civilization?" That question cannot be answered. The United States Census Bureau, which is the official office through which Vital Statistics are collected in the United States, said in one of its reports, "It is impossible to say whether puerperal septicemia is increasing or diminishing in the United States because it is impossible to say how many pregnant women there are at one time in the United States." It would seem at times as if a false idea were created not only in the minds of physicians but also in the minds of the laity when it is said as a finality that puerperal septicemia is a preventable disease. Our observation has been that puerperal septicemia has occurred and does occur in the practice of the most skillful obstetrician and under the most rigid rules of aseptic and antiseptic surgery.

The foregoing remarks do not offer any excuse for poor judgment, poor training or careless methods in treating the parturient woman.

ABORTIONS

The rôle that abortions play in the production of puerperal septicemia has not been realized either by the laity or by the profession until recently. The Children's Bureau report, Bureau Publication No. 203, page 124, has this to say in connection with the subject: "Of the 3,234 puerperal deaths in 1927 in 13 States, 1,278 (40 per cent) were due to puerperal septicemia. One of the objects of the study has been to determine the underlying causes of the deaths from sepsis, which form a large proportion of the puerperal losses. It was found that abortions preceded 45 per cent of the deaths from septicemia. Of a total of 570 abortions 309 were induced, 154 were spontaneous, 19 were therapeutic, and for 88 the type was unknown. Thus abortions known to be induced were responsible for about one-fourth of the deaths from sepsis."

In our own study in Massachusetts in 1929 it appeared that 19 per cent of all deaths from puerperal septicemia in Massachusetts were due to abortions. As far as it was able to ascertain, these abortions were self-induced. It has

been said that 40 per cent of all the deaths in the puerperal state in the United States are due to puerperal septicemia. If that rate is taken as a standard it might be well to compare deaths of puerperal septicemia in Massachusetts with that standard. In 1926, 29 per cent of all the deaths in the puerperal state were due to puerperal septicemia; in 1927, 29 per cent; in 1928, 26 per cent; in 1929, 32 per cent; in 1930, 32 per cent.

Much has been said about a low standard of obstetrics as practised in the United States, but the above statements would indicate that Massachusetts has a better standard of obstetrics than that prevailing in the country at large.

COMMENT

Some method should be devised to teach the pregnant woman to seek medical supervision early in her pregnancy.

The complete physical examination of the pregnant woman should be made as early as possible in her pregnancy by her medical adviser. This examination should be thorough and painstaking even to the extent of inquiring into the obstetrical history of her mother and sisters who have had obstetrical experiences.

Our experience has been that there is a desire amounting to enthusiasm on the part of the profession to do all in its power to improve the practice of obstetrics. The committee feels that a high standard of obstetric practice prevails in Massachusetts. The large attendance at the Annual Meeting, which is larger than the attendance at any other Section meeting, indicates the interest that the members of the Society take in the work of reducing maternal mortality. This sentiment on the part of the profession augurs well for the future and is an incentive to those who have charge of the work "to carry on". For this reason it has been decided that this Section coöperate with the New England Society of Obstetrics and Gynecology for the further study of ways and means to be adopted to reduce the incidence of puerperal septicemia not only in Massachusetts but also in New England.

Respectfully submitted,

CHARLES E. MONGAN, *Chairman.*

June 8, 1932.

A RADIO MESSAGE PREPARED AND SPONSORED BY THE COMMITTEE ON PUBLIC EDUCATION OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE DEPARTMENT OF PUBLIC HEALTH

THE DANGERS OF BEING FAT*

BY SAMUEL H. PROGER, M.D.

You have often heard the old German saying that there are three kinds of fat people. There is the fat person whom we admire, the fat person whom we laugh at, and finally the fat person whom we pity. Here we might modify that classification to pity all fat people over middle age. In a well-known manual on diabetes, there appears a striking illustration of the differences in life expectancy (the probable length of life) between a normal person and an obese one. The illustration shows ten normal and ten fat people living at the same time, on the forty year line. At the sixty year line there are eight normal and six fat people; at the seventy year line there are five normal and three fat people; and at the eighty year line there are three people of normal weight and only one fat person. This illustration is based on accurate statistics and serves convincingly to show the handicap with which the fat person faces life.

When one considers how frequently simple obesity leads to harmful disturbances in bodily functions and when one considers how manifold the complications of obesity are, to how many serious conditions the fat person lays himself open simply by being fat, one wonders why all obese people, particularly beyond middle age, do not willingly make the most serious attempts to overcome the handicap of weight.

Fat, in making its carrier a candidate for many ills, obviously has its serious penalties. I shall not interest myself here with the discomforts of obesity, nor shall I concern myself with the esthetic aspects of the condition, although realizing full well that the latter may be a more powerful incentive to reduction than the most serious threats of eventual physical disability. Briefly I shall discuss some of the penalties of obesity as manifested in the medical complications.

First, let us consider heart disease as the final act of the fat person's life drama. Just why fat people tend to develop heart disease more readily than do people of normal size cannot positively be stated, but that they do develop heart disease in relatively great numbers is definitely known.

The fat person is often pictured as constantly carrying an excessive and useless load about with him, a load which eventually exacts its toll on the heart by virtue of the fact that it serves as a steady cause for overexertion. We know that in fat people the heart is pushed upward and outward by the padded abdominal contents and it may well be that the heart in this situation works at a disadvantage. Also the mobility and excursion of the lungs become hampered, and satisfactory breathing becomes increasingly difficult. It is believed that this situation has an indirect effect on the heart so that the strain is increased. It is known that as a person increases in weight by adding considerable fat, the heart muscle does not increase in proportion, and this disproportion between the heart size and body size may be a significant factor in precipitating the heart disease which is so often encountered in the obese person.

Altered chemical changes in the body associated with abnormal deposits of fat may also be deleteri-

(Continued on page 312)

*Broadcast: May 10, 1932. Time: 4:20 P.M. Station: WBZ. Place: Hotel Bradford.

NEW ENGLAND BRANCH, AMERICAN UROLOGICAL ASSOCIATION

RESECTION OF THE PRESACRAL NERVE FOR CORD BLADDER*

BY FLETCHER H. COLBY, M.D.†

INCREASED knowledge regarding the nerve supply of the bladder has recently led to attempts to remedy dysfunction in this organ by surgical attacks on certain of its important nerves. Satisfactory results in this direction have been achieved through division of sympathetic fibers supplying the bladder in cases of motor disturbances, and to some extent in the control of pain. Much of the experimental work has been done by French investigators, although lately the study has been furthered by Learmonth at the Mayo Clinic. The outstanding results have been those in which function has been restored in cases of "cord bladder" by resection of the presacral nerve.

The bladder is enervated by three sets of nerves; sympathetic, parasympathetic, and somatic. The sympathetic nerves arise from the lumbar sympathetic chain and certain of the abdominal plexus and ganglia. These fibers reach the bladder by way of the hypogastric ganglia through the presacral nerve. The presacral nerve contains the majority of the sympathetic fibers to the bladder and is situated below the bifurcation of the abdominal aorta. Sympathetic fibers are motor to the internal sphincter and inhibitory to the bladder muscle. They also convey sensations of pain. The parasympathetic nerves are motor to the bladder muscle, inhibitory to the internal sphincter, and sensory to the bladder and posterior urethra. The pudic nerve (somatic) is the chief motor supply of the external voluntary sphincter and sensory to the posterior urethra.

Resection of the sympathetic nerves relaxes the internal sphincter and allows the parasympathetic nerves to contract the bladder muscle and empty the organ without the inhibitory action of the sympathetics on the detrusor muscle. There is, therefore, no evident abnormality in the act of micturition after section of the sympathetic nerves.

According to Learmonth, however, in male patients, section is followed by loss of power to ejaculate, although the psychic orgasm persists unchanged, and in other respects the genito-urinary functions are unimpaired.

As a result of certain diseases which involve the nerve supply of the bladder the balance between the sympathetics and parasympathetics is lost and the bladder no longer functions normally. In such instances resection of the presacral nerve may restore the balance and normal function may result. The outstanding indication for the operation, as given by Learmonth, is evidence of injury to either the central or peripheral part of the parasympathetic system, when the central or peripheral parts of the sympathetic system are intact. Total paralysis of the parasympathetic nerves must not be present for then the motor power is lost. The external sphincter must function normally.

Resection of the presacral nerve has been done in two instances of "cord bladder" during the past year at the Massachusetts General Hospital. These cases were studied on the Urological service and operated upon by Dr. W. J. Mixter of the Neurological service. He is kind enough to allow me to report them.

The first case is that of a boy of sixteen admitted to the Massachusetts General Hospital on June 4, 1931. He complained of an ulcer of the left foot of over a year's duration, and difficulty in emptying the bladder. The patient was born with a meningocele which had been operated upon at one year of age. Other congenital physical abnormalities were clubbed feet and torticollis. Ever since he could remember, wetting the bed at night had been of common occurrence, but more particularly so in recent years. During the past two and a half years urinary control had been poor and there had always been urgency and frequency of urination. Occasionally he had been unable to empty the bladder at all, although the organ felt full.

Physical examination showed a well developed and nourished youth with an operation scar in the lower lumbar region accompanied by marked hyperesthesia of the surrounding skin. Both feet were somewhat clubbed and the left foot was the site of a chronic draining ulcer. In the lower sacral region there was a pilonidal sinus. Well-marked changes in cutaneous sensation were found. Anesthesia was present over the medial half of each buttock extending down the back and sides of the legs in a symmetrical pattern. The perineum, scrotum, and most of the penile skin were anesthetic. The postero-lateral aspects of both legs from groin to ankle and both feet were insensitive to pin pricks. Position sense of the toes was absent and sensations of heat and cold in the feet were lacking.

The bladder contained five ounces of cloudy, purulent residual urine. Cystoscopic examination showed only an infected bladder mucosa and some trabeculation. Intravenous pyelograms demonstrated normal kidneys and barium enema showed a normal large bowel.

Attempts to improve bladder function by the

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Read at the meeting of the New England Branch of the American Urological Association, February 10, 1932, at Boston.

†Colby—Assistant in Genito-Urinary Surgery, Harvard Medical School. For record and address of author see "This Week's Issue," page 329.

elimination of infection through catheter drainage resulted in no improvement, residual urine varying from five to twelve ounces. On July 28, 1931 the presacral nerve was resected together with an excision of the left second, third, and fourth lumbar sympathetic ganglia by Dr. Mixter. For about two weeks following operation the bladder was kept at rest by an indwelling catheter. Convalescence was smooth and the patient was allowed to go home in three weeks. Shortly before discharge the residual urine was fourteen ounces. Frequent catheterization was carried out at the patient's home and on December 9, 1931, about four months after operation, he reported to the hospital. There had been an improvement in the bladder symptoms in that the bed was less often wet at night and urinary control was better. The residual urine measured three ounces and there was less frequency. He was still unable always to voluntarily start the urinary stream, however, frequently waiting for it to start spontaneously. On December 23, 1931 it was found that he completely emptied the bladder, there being no residual urine present.

The second case was that of a forty-nine year old brakeman who complained of incontinence of urine. Ten to twelve years ago he had first noticed nocturnal leakage of urine. This condition had persisted and grown worse to the point of continual dribbling. Frequent periods of chills and fever had lowered his general condition. There had been "lightning pains" in the legs. Twenty-four years ago he had noticed a penile sore which had evidently received inadequate attention. Although he had two healthy children there had been one miscarriage, one still-birth and one death in infancy.

On examination the patient was found to be in poor condition. A dry, coated tongue, hiccoughs, and high non-protein nitrogen, gave evidence of impending uremia. The bladder held sixteen ounces of infected residual urine. Following the intravenous injection of skiodan, no shadows of either kidney pelvis or ureter were obtained. Knee jerks and ankle jerks were absent. Although the blood and spinal fluid Wassermann tests were normal, the case was considered one of burned out syphilis with tabetic lesions of the cord. Cystoscopic examination showed an insensitive bladder with fine trabeculations and a relaxed internal sphincter.

On July 29, 1931 the presacral nerve was resected by Dr. W. J. Mixter. The operation was followed by a normal convalescence, the bladder being drained by urethral catheter for about two weeks. On August 18, about three weeks after operation, the bladder symptoms were unchanged and the residual urine was twenty-three ounces. Since then the patient has come to the out-patient department every three or four days. The residual urine now varies from ten to fourteen ounces and there is no evidence of improvement in the bladder condition. The non-protein nitrogen has risen to 75.

The first case is an example of the good results which may be obtained by section of the presacral nerve or "cord bladder". In this instance removal of the sympathetic nerve supply resulted in an improvement in bladder function. In the second case the operation accomplished nothing beneficial. Failure may have been due to the fact that the parasympathetic nerves were too badly damaged to provide the necessary stimulus to cause contraction of the bladder muscle.

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Discussion

Dr. Mixter: I have very little to add to what Dr. Colby has said. I think he covered the ground very completely. There is this, however. To my mind, the second case was undoubtedly badly chosen, did not lend itself to surgery of this sort and it seems to me that in trying to handle cases of this kind we must look to your Society for perhaps additional criteria before operation.

Another point which seems to me of great importance is the question of prevention of ejaculation by this operation. There is the possibility that dissection of the presacral nerve can be applied to other conditions such as megacolon, but if we are going to sterilize all the boys who have megacolon by operating on them in this way, it would be very bad business. It seems to me there may be some other attack on the sympathetic nervous system which would be more satisfactory both from the point of view of neurolysis and its effect on the large intestine. It is a very complicated system and I do not believe that the anatomy is completely understood even yet. I trust that we shall be able to work out better criteria for this operation in both sets of cases. For the present I think it must be reserved for the individuals who would otherwise be sterile.

Dr. Quinby: I have attempted this operation of division of the presacral nerve or the hypogastric plexus in three instances, always, of course, as did Dr. Mixter and Dr. Colby, advisedly. The difficulty in this matter lies just here, that none of the deductions which can be made from animal experimentation hold good in the human being. The sympathetic nervous supply of the pelvic viscera in animals is definitely different from that in man. It is very complex in either and any results which we may obtain must come essentially, I feel, from justifiable experimentation in man, because I think there is no chance, except a very remote one, to draw any inference from animal experimentation.

As concerns the bladder, we are dealing with an organ which has peculiarly three nerves and each one of these nerve supplies is double, namely both motor and sensory; so that literally you have six nerves going to the bladder, six nerves which in one way or another control the function of urination. The school of Leriche in Lyons has done a great deal in regard to sympathetic nervous system surgery, and in applying it to the pelvic viscera they have come to certain conclusions, pretty definite so far, but most of their conclusions deal with women and have

to do with dysmenorrhea which is not relieved by any ordinary methods. When one, however, attempts to control pain in the bladder by the resection of one nerve or another, it is entirely a matter for investigation still. No one has any definite ideas of how pain may be controlled.

In the cases which Dr. Colby has reported, the attempt was not to control pain but to control faulty motor function. In one case my feeling would be that Dr. Mixter and Dr. Colby were rewarded by a very brilliant result, in the other case by a total failure. It is important that such cases be published because of the effect which they will have on our ideas after a sufficient number have accumulated.

There is one point in regard to this matter which Dr. Mixter did not mention, I imagine through the fact that he does not wish to blow his own horn, but it is not an easy operation, and the fatter the patient, the harder the operation, for the reason that the retroperitoneal tissues, if they are full of fat, are often so ambiguous from the point of view of these very fine sympathetic fibers that it is hard to pick out definite nerve trunks, and when one speaks of the presacral nerve and when one draws a diagram of it as Dr. Colby has shown you on the screen, it is very far from the actual conditions which you may find.

A man writing in one of the anatomical magazines having investigated a large number of cadavers demonstrates the fact, at least so far as his work goes, that the presacral nerve is only present as a definite nerve in something less than one-fifth of the cases. In other words, in only twenty out of a hundred cases will there be a presacral nerve. In eighty cases you will find a rather ambiguous sort of plexus. This is quite different from resection of the sympathetic chain on either side of the trunk. When one attacks the supply of the pelvic organs, apparently the developmental conditions are quite irregular in many instances, and unless you have a very extensive familiarity with the conditions, you won't know what you are doing when you get there, so that I wish to commend the report of such cases as these, inasmuch as I am firmly convinced that it is only after multiple reports of such sort, carefully correlated and carefully observed that any knowledge of this very interesting department of nervous control of the bladder will be reached.

A MODIFICATION OF THE KIDD SUPRAPUBIC PERFORATOR AND INTRODUCER*

BY VINCENT VERMOOTEN, M.D.†

THIS is to present a new cystotome (Fig. 1) which was made at my suggestion by C. R. Bard of New York. It has several modifications which have suggested themselves to me as a result of the use of the Kidd instrument[1].

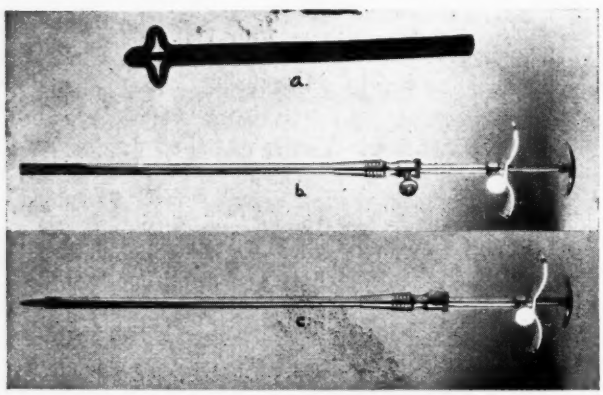

FIG. 1. (a)—No. 36 F. Two-wing catheter. (b)—The Vermooten-Kidd cystotome with blade retracted showing movable "grip" with a screw to hold it in any desired position on the shaft of the instrument. (c)—The same instrument with the blade protruding. Note the spring around the inner shaft at the top of the instrument which retracts the blade when the screw which holds it is released.

First, it is very much shorter, so that it is more easily transported and more conveniently used. The shortness of the instrument necessitates cutting the catheter to be used in half. This, however, is of very little disadvantage.

Secondly, as the instrument is in one piece, there is no possibility of mislaying any of the parts.

Thirdly, there is a movable attachment or "grip" for the catheter so that it may be pulled up to any degree of tautness.

Lastly, the most desirable feature of this cystotome is a retractable blade. This permits the use of the instrument in bladders of only small capacity with no danger of injuring the structures at a point opposite the cystotomy wound.

METHOD OF USING THE CYSTOTOME

It is by far preferable to use this instrument for suprapubic cystostomy by introducing it into the bladder after the organ has been exposed through a low mid-line suprapubic incision. If necessary, the bladder may be distended through a urethral catheter with either a mild antiseptic solution or sterile water until, on palpation, it is moderately tense or the patient complains of a great desire to urinate. The peritoneal reflection is then pushed up off the fundus of the bladder as it is desirable to make the cystostomy opening as high up on the fundus as is possible. If the bladder is not very tensely distended, it should be grasped and steadied with two Allis (mucosa) clamps.

A two-wing catheter (preferably size 36 F.) is stretched over the cystotome and the blade

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allowed to protrude through it. The instrument with the catheter is now introduced into the bladder. The blade cuts through the bladder wall, and when the first centimeter of the catheter has passed out of sight, the blade is retracted and the instrument carrying the catheter is plunged into the bladder.

The "grip" holding the end of the catheter is now released and the instrument almost completely withdrawn. At this time the catheter is first clamped and then the end slipped off the "grip".

Very little, if any, of the bladder contents escape during this procedure. If there is any leakage, the wound should be thoroughly irrigated with sterile saline before closing it. If it is desired to decompress the bladder gradually, the clamp is allowed to remain on the tube until the decompression apparatus has been attached to it; otherwise the clamp is removed and the vesical contents allowed to escape.

Before closing the abdominal wall, it is well worth while to suture the bladder to the posterior rectus sheath with one No. 0 chromic catgut suture. The suture is passed through the bladder about two centimeters inferior to the cystotomy. A rubber sheath drain is usually placed in the space of Retzius and is removed twenty-four to forty-eight hours after the operation. The tube should be sutured to the skin, for if it is removed within a week or ten days after the cystostomy it may be well-nigh impossible to replace it without reopening the wound. If a two-wing catheter is used and the proper technique followed, the wound as a rule heals per primam.

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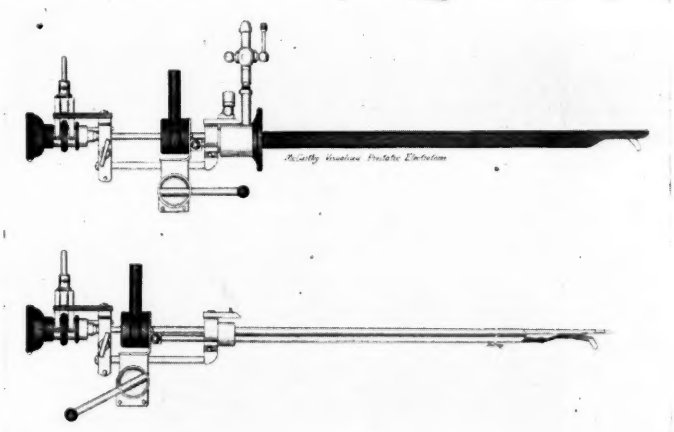
THE MANAGEMENT OF PROSTATIC OBSTRUCTIONS BY ENDOSCOPIC REVISION*

BY JOSEPH F. MC CARTHY, M.D.†

THE kind invitation to be your guest this evening was immediately accepted because of its complimentary implication, and for the reason that it gave me an opportunity again to exchange viewpoints and greetings with old and much admired friends, and to place before you my conception of this new slant on an old subject.



It is significant to note that the first attempts in the relief of the urinary obtructions of prostatic bars and hypertrophies, long before open operation had been attempted, was by means of instrumental incision, involving the use of galvano-cautery, etc. These men had the right slant but the wrong tools. Today we are back where we began, though thanks to advances in the collateral sciences, of optics and electricity we have the same conception, but this time armed with the right tools. The interim between the first attempts and those discussed here marks the brilliant development of the radical surgical approach to the prostate.

The similarity, it should here be noted, is in fact that the method is instrumental and uses the same avenue of approach. Here, however, the comparison ends, for in the earlier technique as represented by Bottini, incisure was practiced. Here the physical removal of the obstructing prostate is accomplished.

My interest in this method began about twenty years ago—in fact, I still have reprints of reports of two cases of prostatic hypertrophy treated endoscopically at about that time with high frequency current, with, in the cases reported, spectacular results. Because, however, of later unsatisfactory experiences, and the be-

*Read before the New England Branch, American Urological Association, Boston, February 10, 1932.

†McCarthy—Professor of Urology, Columbia University. For record and address of author see "This Week's Issue," page 329.

lief that further developments in the associated physical sciences were essential to anything approximating success, only occasional and tentative efforts were made in this direction during the earlier of the intervening years. Among the outstanding reasons was the conviction that the spark gap current then and even now in use was too destructive and deep seated in its action on tissue, and the added fact that it did not sever these obstructing tissues as cleanly and evenly as seemed to me desirable.

During the past five years, however, upon my repeated solicitation, sustained research has been carried on by Mr. Frederick Wappler, who has succeeded finally in the development of a new type of electric cutting machine that meets the most exacting requirements.

Once this became evident renewed efforts by his father, Mr. Reinhold Wappler and myself, have resulted in the very logical and effective Visualized Electrotome here presented. It is but fair to acknowledge our debt of gratitude to

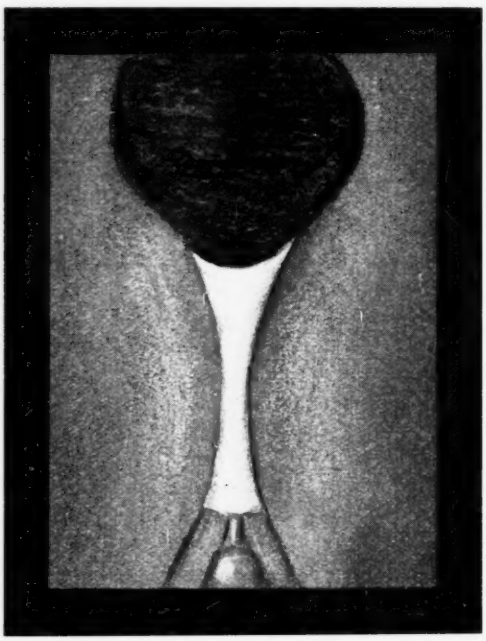


FIG. 1. View of posterior urethra after removal of middle lobe.

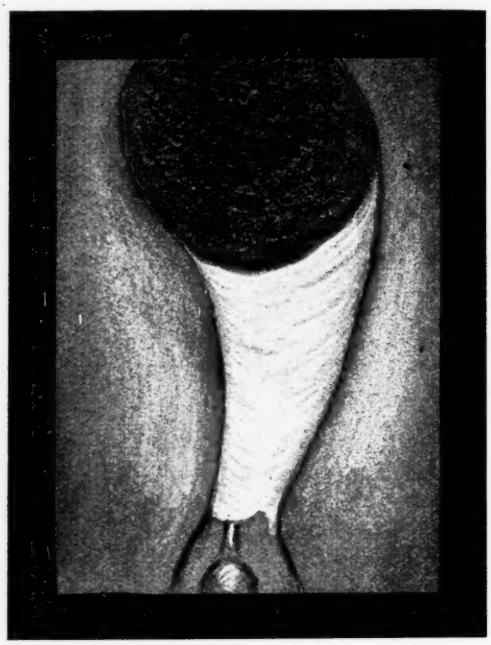


FIG. 2. View of posterior urethra after removal of middle and left lateral lobe.

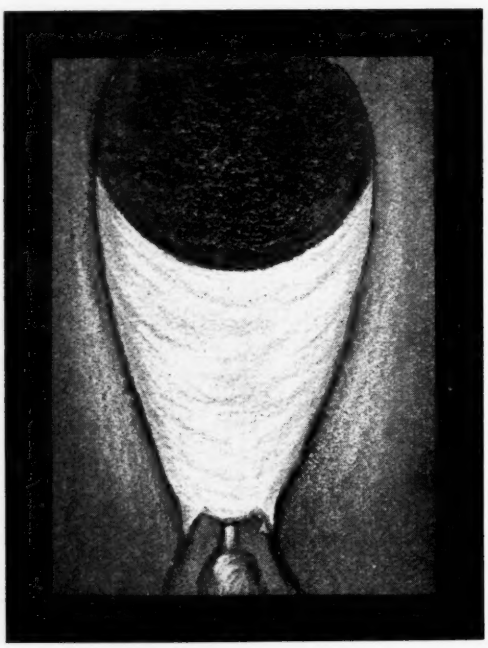


FIG. 3. View of posterior urethra after complete removal of all obstructions.

Caulk and Davis for the inspiration derived from their splendid work.

In brief, I think it may be justly claimed that with the equipment previously mentioned, we have the means of revision at will of prostatic obstructions in at least 80% of prostatic fibroses, hypertrophies and malignancies, that until quite recently have been done by open operation, that the technique is more surgical and more precise than is that of digital enucleation, and that in skilled hands its mortality is negligible, its hospital domicile is brief, averaging 5-10 days—the rare case a few days longer. Its posthospital morbidity is notable for its comparative absence, and finally it opens up that much wider and more hopeful field of relief of prostatism at its incipiency. These individuals may thus be spared that vicious cycle of secondary changes which have heretofore militated against the comfort, and the full economic usefulness of a considerable proportion of men in the early fifties, when their mental capacity is at its peak.

The rationale of this new method is that we have here perfect visualization of the mechanics of the obstruction and are able to effect its physical removal with the utmost precision and with maximal safety. Therein it differs from the efforts of the early urologists who had the correct clinical concept but who were, because of inadequacy of equipment, unable to cope with the manifold technical difficulties.

With one introduction of the instrument via the urethra the operative steps of removal—hemostasis by coagulation of bleeding points under vision, and the final introduction of the indwelling catheter through the endoscopic sheath may be carried out. The anesthetic generally employed is sacral, paravertebral, plus the urethral instillation of borocaine. The aftercare, which is most important, involves the constant maintenance of drainage.

A word of caution, however, should be added here to the effect that this is a highly technical procedure, that unless its employment is confined to the expert instrumenteur who is by experience qualified to make decisions and to cope with the occasional surgical difficulties that must in a large series of cases inevitably be encountered, the end result will be a disgruntled patient and a disillusioned operator.

It must also be remembered that in the development of this work, even the qualified must serve the same apprenticeship and overcome the same difficulties as have we, with the above reservations, however, that when the method is given the close attention and the study it merits, the rewards to patient and urologist will more than compensate for the time and study involved.

My objective in bringing this new procedure to your attention is to arouse the interest of the many qualified urologists in this audience, so that your experience may be summed up with ours, an early evalution of its merits arrived at, and its final place in the surgery of the prostate determined upon.

Discussion

Dr. Quinby: Through his ingeniousness, Dr. McCarthy has adapted electrophysical methods to the common conditions of obstruction of the neck of the bladder by various forms of pathology of the prostatic gland.

It is important to realize how many advances in knowledge depend on a new method; not on the discovery of a new truth, not on new philosophical correlation of a lot of facts which have been previously lying dormant—that is one form of advance—but on bringing forth a new method. You will easily appreciate the importance of this when you think of the great progress which was made immediately after there was added to the cystoscope a simple little deflector which made possible the introduction of a catheter into the ureter for the first time. This was one of the contributions of Albarran.

We have reached the point now where Dr. McCarthy has succeeded in adapting physico-electrical methods to intraurethral procedures and I am sure that we have all been privileged tonight to listen to the master in this field. Doubtless many of us won't agree with some of the things which he has said, but, although he has not asked you to do so, I beg of you to realize that this whole field is in its infancy. A great deal of promise is already at hand and most of the important advances which will be made along this line will undoubtedly be due in their origin to the pioneer work which Dr. McCarthy has briefly outlined to you now. I hope there will be extensive discussion.

Dr. McCarthy has not taken you through the somewhat involved field of the electrical modalities or type of electrical current which is used in such a procedure. To be perfectly frank with you, having looked the matter up myself, having also partially stimulated one of our men at the hospital to work on the subject still further at the Jefferson Physical Laboratory in Cambridge two years ago, having tried to accumulate some more or less fundamental ideas in regard to the current potentialities, changes, etc., it is only fair to say that today exactly what happens at the end of Dr. McCarthy's loop or at the end of an electrode used in this way is not entirely agreed upon by the physicists. The type of current which cuts quite the same as the knife cuts is one which presumably cuts by a very intense arc although a very small arc, that is, small so far as its distribution from the electrode is concerned, of intense heat due to current intensity and the very quick inter-

ruption of the current. In other words, it is a current of very marked high frequency. There are a good many characteristics of such a current at the end of an instrument which will surprise you if you are using one for the first time. For instance, a current sufficiently intense will, without any resistance such as one gets when using a knife, cut through all tissues and by all I mean all. It will go through bone just as easily as it goes through fat. It cuts by dissociation and destruction of the integral structure of that tissue.

In the intraurethral method, before the use of such a cutting current, one must necessarily learn these various facts. One gets no resistance. The pressure which one uses on the end of the cutting electrode is entirely negligible. The results one gets are directly dependent upon the current which is being generated and into that question of the type of current used, Dr. McCarthy has not seen fit to go. One usually has to depend on the electrician who builds the machine. The machines are highly perfected today;—it may be that they will be even more perfected, but it is surprising to find on using this method in the open bladder, under which circumstances only my experience is concerned, how readily with no pressure whatever a proper current goes through whatever tissue you wish to assault. It is worth while emphasizing the fact, however, that the type of current is of vast importance because if one uses a current which is too severe, one gets destruction much wider than the destruction of a knife cut, much wider than the destruction which follows the usual type of enucleation of the prostate, whereas if proper current is used, the destruction is not nearly so widespread.

Furthermore, in regard to the control of bleeding, and that is one of the major points in this procedure, as Dr. McCarthy describes it to us, if the current be not a proper current, it will so destroy that minute blood vessel as practically to cause even more bleeding rather than less. In an open operation, if one puts a clamp on a bleeding vessel, all that is necessary to do is to touch the handle of the clamp with the current; one doesn't have to go down to the vessel at all. This current will be transmitted down the clamp and coagulate the vessel so that there will be no bleeding. If, on the other hand, you use too much current, you will entirely char the part of the vessel which is in the grasp of the clamp and bleeding will be more furious than before. So the whole procedure, as Dr. McCarthy has already told you, is one which requires a very considerable amount of familiarity, beginning on the median bars first and then working up from this. I would suggest that the individual who attempts to use these electrodes begin on a piece of beefsteak before he tackles a person.

I did not learn clearly from Dr. McCarthy's remarks how far he carries this procedure; how far he advises carrying it. In communications which Dr. Davis has been responsible for, I get the impression that his attempt is one of pretty complete enucleation of a hypertrophied prostate. From Dr. McCarthy's remarks I find myself much more in accord with his idea that a channel be developed in the deformed posterior or prostatic urethra, but that no attempt be made to enucleate the whole gland.

There is another point of which undoubtedly Dr. McCarthy will tell us. This is the question as to whether he has used bipolar or unipolar current. I would like to ask him to point out these matters later.

So far as the type of cases in which this procedure is applicable is concerned, I have had no experience with it and there is not, therefore, any special justification for what I wish to say. I do, however, feel that except in the rather minor forms of enlargement of the prostate, a total removal of a prostate by this method is in the first place, if the gland be markedly hypertrophied, impossible, and in the second place inadvisable. If merely tunneling the deformed prostatic urethra so that the inner end of the urethra is level with the trigone, will restore complete bladder function, that is an entirely different matter. I did not appreciate that that could happen before these methods were used, and time only will show whether that result will occur after this method has been used. We have all felt, I think, possibly without saying so to ourselves in so many words, that the entire removal of the hypertrophied portions of the prostate at the outlet of the bladder was really necessary for a complete functional result. I know I have felt that myself. I still rather tend to feel so. Final judgment on that question, however, will rest on the result of these partial procedures such as is represented by these electrophysical methods. It is hard for me to believe, brought up possibly in the older school, that something short of a restitution of the bladder neck to normal is consistent with normal bladder function, but this may be the case. Dr. Caulk has felt that partial removal of a hypertrophied prostate caused what was allowed to remain to regress, to grow still smaller, and to be of less significance. If you try to tell that to any pathologist he says it is absolutely impossible for that sort of tissue to regress, simply because the bladder may or may not be able to empty itself. I am very much interested in that. I even went so far as to bring down this clay model of an ordinary, average-sized prostate to illustrate the type of prostate one frequently sees, and to ask Dr. McCarthy how much of that prostate the electro-surgical method is going to remove. The prostate has not only raised the floor of the

bladder up but has projected through the sphincter so as to give a median lobe enlargement. Practically all of the enlargement in this case is above the ejaculatory ducts and above the veru.

DR. CHUTE: I want to thank Dr. McCarthy for my pleasure in what he has told us. I know nothing about this operation except from hearsay and from an enthusiastic letter that I have seen from a man who is usually very careful in his deductions and who agrees with Dr. McCarthy on many points. I would like to ask two or three questions.

In the first place, how apt are these machines to get out of order? Is it sufficient for a man to be supplied with one machine or should he have a lot of lamps and loops?

Another thing. We used to hear a lot about the internal sphincter. I must say that I never paid any attention to it, but I see you cut through where the internal sphincter would be, according to diagrams. Also what becomes of the pieces that you cut out? According to your diagrams, they remained in the bladder. I know something of the work that Dr. Davis does and have seen the pieces that he cuts out, and I gather that he takes out his pieces with each cutting. I wonder if this is similar.

DR. BARNEY: I would like to testify to the work which Dr. McCarthy is doing. I spent quite a long time at his clinic, received most courteous treatment and he showed me what this method could do. It is quite amazing how well I could see, through his pan-endoscope, just where the obstruction was and just where the loop was to be placed and what it did after it got there. I was very much impressed by it.

Through the courtesy of the Liebel-Flarsheim people, we have had one of the Davis Bovie machines and a Davis resectoscope and subsequently through the courtesy of the Wappler people have received the McCarthy machine, which we have not yet tried. I had an opportunity of trying the Davis Bovie machine and the Davis resectoscope on two cases of carcinoma at the hospital. One man was pretty well riddled with metastases and had what you might call a median bar of cancerous prostate. He had retention and had been on catheter drainage. This was my first case and I was awkward about it. I was amazed how awkward I could be. Having looked through a cystoscope for quite a while I thought I knew what I was doing, but it was very confusing. With a good deal of awkwardness and difficulty, I got out two or three pieces, all that I thought I could at the time. I was surprised to find that the man was eventually able to pass his water and has now only about one ounce of residual and it did not upset him. The next day he was like himself and had no bleeding whatever.

Then there was another man with a somewhat similar condition who had a bar of cancerous tissue, with eight or more ounces of residual and had been on suprapubic drainage for some days. In this case it was much easier to see what I was about and to get at the lobe of tissue which I wanted to resect so that without great difficulty I was able to resect 15 or more pieces which seemed to be in the strategic point. With him I have not had the same results. I have tried clamping off the bladder, or at least closing the bladder by clamping off the suprapubic tube and filling up the bladder as much as it would hold with boric acid but as yet he cannot void. That has only been tried once. I think he will have to lend himself to a second procedure.

DR. RILEY: I have had the opportunity of doing a few median bars and getting out some parts of the lateral lobes with electric current in the last few months and my trouble has been edema following such a procedure. I would like to ask Dr. McCarthy whether he has edema following his operations?

DR. COLBY: Dr. McCarthy spoke about the difference between the spark gap machines and the tube machines. It is difficult to practice medicine and to be an electrician at the same time, and I frankly know very little about the inside of the diathermy machine. I do know that there is a difference between the tube machine and the spark gap. We at the Massachusetts General Hospital have used what we consider the last word in diathermy apparatus, that is, the Bovie machine. To our discomfiture we recently found that the Bovie machine was said to be considerably behind—certainly in this respect; that it would not do the necessary work to accomplish the prostatic resection. I went to the trouble of getting one of the electrical engineers from Technology to look at the Bovie machine and tell us the difference. So far as he could tell, the only difference between that machine and the Davis Bovie machine is the intensity of current which the two machines delivered. In other words, the Bovie machine will cut under water with the loop but it won't cut without a certain amount of resistance and it will not cut always certainly perfectly smoothly, whereas the Davis Bovie machine has that in view. So far as I know, and so far as he could determine, the technical difference between these is that the Davis Bovie machine was higher geared than the ordinary Bovie machine. I have no familiarity with the tube machine and I would like Dr. McCarthy to explain some of the differences between the two.

DR. QUINBY: I do not know how much we wish to go into the electrical aspect of this matter.

I think Mr. Woodsum will be willing to say

a word to us in regard to the potentialities of the various types of machine. I only hope that he will not lead us too far afield, because we are not electro-physicists.

MR. H. C. WOODSUM: I will take this opportunity to say a few words relative to the two types of electric cutting machines, the spark gap machine and the tube machine. My association with the Wappler Company during the past five years, has enabled me to acquire some knowledge of the developments in this field.

It is not my purpose to condemn the spark gap machine. Some of the generators of this type are very good products, and show high quality material and workmanship. These machines will cut when conditions are favorable. However it is my opinion that the spark gap generator is not absolutely dependable, not only for the working of the machine, but the cutting results are very much open to criticism. Occasionally you will have prepared for your operation, and you will find that the machine doesn't work, due, possibly to the gaps being carboned or out of adjustment, etc., to all of which the operation of this new tube machine is immune.

The spark gap machine, necessarily, produces currents of unsteady intensity, owing to damped oscillations, which cannot be eliminated in this type of generator. We learn that the current from this machine is too destructive to the tissues to obtain the desired results that you anticipate. Therefore we turn our attention to the high frequency arc; the tube machine.

In my estimation, the new McCarthy Surgical Unit is the most efficient high frequency generator ever produced. It is a product of the Wapplers, who for years have excelled in the manufacture of urological equipment. The machine has a reserve of power, absolutely silent in operation. The use of the large vacuum tube insures undamped oscillations, which produce currents of uniform intensity. Any load on the line will not interfere with the operation of this machine.

Especially in prostatic resection is it necessary to have an abundance of power under perfect control since you are to work in a water medium cutting with a loop electrode, which demands more power than cutting with a needle point. With the use of this machine, the incision is more like the cut of the scalpel, yet there is sufficient coagulation to control bleeding.

In my experience with the McCarthy Surgical Unit to date, it has proved to be entirely trouble-proof and satisfactory in every detail. It enables the operator to carry out his work without fear of failure.

DR. BOHM: How soon would you cystoscope a patient after you have done this procedure? How long does it take this prostatic area to heal? I have never done any prostatic work but in cervical work it works out practically on the same basis.

DR. DENNIS: What anesthesia do you use for this work?

DR. MERRITT: A great many men, especially Bentley Squire, when doing a prostatectomy, emphasize the need of removal of all spheroidal bodies in order to prevent recurrence. I am wondering in this work just described what percentage of cases show recurrent growth. Will Dr. McCarthy please tell us if it is possible by this method to remove all of these bodies?

DR. SMITH: May I say just a word about the question of depth of coagulation. It seems to me that too much emphasis is laid on that point because if one coagulates a neoplasm of the bladder with the bladder open, using a round button diathermy electrode, he makes a deep form of coagulation and yet when that is healed one is astonished at the perfect smoothness and flexibility of the bladder mucosa. From my experience it would seem to me that one need not fear any cicatricial contraction due to a slightly greater depth of burning in the prostate than in the bladder.

We have all admired very much the restrained way in which Dr. McCarthy has put his subject before us. I think that it is going to have great popularity, perhaps too much for a while, but I think he has sounded the proper note of warning and I feel that he has made a very definite contribution.

DR. MCCARTHY: Dr. Quinby's question as to the type of modality is a question in which I have not particularly interested myself. If I were to devote my time and study to the matter of electrical current characteristics without the essential basic scientific training, I would not be here relating this story tonight. What I have been more concerned in is how these various methods work clinically. I doubt if any one fully understands this current, not even the Wapplers, but I have sought for years to have developed a machine that would actually and cleanly cut under water. This machine does that. Wappler has stated that an approximately accurate description would be to compare it with radio current. Sections examined microscopically show that it cuts even through the cells. It cuts cleaner and better than the sharpest scalpel. My enthusiasm was reawakened in this work when I saw what this current really could do.

I am not particularly concerned about recurrence. The men who have been longest in this field with methods that I consider less efficient because of the use of spark gap current, with its carbonization and destruction of tissue, have

made the assertion, which I believe, that instead of recurrence there is a notable recession in the prostate. This has been the observation of Caulk, Davis, and Engel, of Crile's Clinic. All of us know that following suprapubic cystotomy there is a very obvious recession of the prostate. Frequently we wonder what became of the large prostate we saw before we did the cystotomy and effected drainage.

As to the statement about the pathologists laughing at Dr. Quinby, it may be said that pathologists know very little about prostates from the standpoint of obstructive mechanism. They study prostatic tissue to determine the type of cells; they get the specimen postmortem. Anybody who knows anything about postmortem prostates knows that there is not one case in twenty in which one can demonstrate a prostatectomy in an old individual. What becomes of that prostatic tissue? As a result of this work and more minute observation I have come to the conclusion that the prostatic enlargement is part hyperplasia and part waterlogging and that when you relieve the cause of the waterlogging, the prostate recedes. Supposing it does recur in three to five years. I wonder how many of you doctors would have your prostate taken out, have a hole dug out such as Dr. Quinby showed in this specimen. That shows what the doctor takes out. These prostatectomized patients have a long hospital convalescence, an infinitely longer posthospital morbidity. We know how sick and debilitated these patients are for weeks and months after prostatectomy and we know that while prostatectomy gives splendid clinical results in many cases, there are still many other cases that have bands, elevation of the posterior lip, vesiculitis and other sequelae following it. Neither do I agree with Dr. Quinby in the statement that his specimen is an average prostate. I think that it is an unusual type of prostate. There are four grades. Davis operates on grades 1, 2 and 3 and does not operate on grade 4. We have to apply the rule of common sense to this as well as to prostatectomy and unless we do, we are going to do these men harm. Nothing but time and experience will tell us how much to take out. If some one will tell me how many years it has taken for a man to develop an obstructing prostate, I may then be able to promise how long it will take for recurrence, and since it only means three to ten days hospital domicile, no external incision and none of the anxieties to the patient, his family and the doctor, I question very much whether any of you doctors who have seen this work done and who have noted the symptomatic cures would be willing to have his prostate taken out. These patients approach the table with much greater readiness when they are told they will not have an abdominal or perineal incision.

I have no desire to become involved with various types of machines. I think there has been too much commercialization in this matter, resulting in a great deal of confusion. There has been too much high pressure salesmanship, misleading the men working in this field. Such should be condemned. The Wapplers are scientists; they are not peddlers. They have done a fine piece of scientific work. As to the spark gap versus the tube type of machine, there is no comparison in their application to the thing we are seeking, which is, the clean and precise removal of the offending, obstructing prostate, with a minimum of deep coagulation.

As to Dr. Smith's statement about the bladder, we must not forget that we are dealing with a narrow tube and that any amount of cicatrization may effect an undesirable late result. The powerful machine that will so readily stop oozing means tissue destruction and carbonization. Randall has noted in a few cases that following the use of this method with this type of machine, he is able to make microscopic studies, whereas with the spark gap current he has not been able to make such studies.

Dr. Chute asked about machines getting out of order. My machine has received no attention and has not gotten out of order at all. There has been no occasion to have inspection of it or anything done for readjustment or repair. The loops are good for perhaps half a dozen or more cases.

Dr. Chute also asked about the internal sphincter. In prostatic hypertrophy, the internal sphincter is pushed out of the field. I do not believe that the internal sphincter is in any way affected. As I stated in my paper, I like to leave the thing about as I imagine it should be normally, so that I cannot look from the deep urethra and see the trigone. The amount of tissue to be removed is defined by canalization beyond what one would consider normal. It is tubular in appearance. Instead of, as would normally occur, a certain amount of prostate showing in the endoscopic picture, we see a tunnel.

I can quite understand Dr. Barney's difficulty in visualization with a fenestrated type of tube. That type of vision and punch procedure is utterly wrong. The idea of taking a fenestrated instrument and pressing it down on some real or fancied protuberance and trying to hold it fixed and then blindly cutting it without the slightest vision is to my mind an illogical approach. If you see it in tubular fashion and can visualize the application of the loop in its initial and terminal stages, the removal can be effected rationally and surgically. I do not believe an artist would attempt a reformation of a tube encroached with plastic material, by pushing down a fenestrated instrument against it and gouging it out. I think he would do it some-

what in the manner described by taking a loop and reaming it out. It is a reaming operation; a remodeling of the urethra.

As to postoperative cystoscopy. We make no attempt to cystoscope these patients for some weeks following the operation. It has been our observation that it takes from six to eight weeks for urethral convalescence. The patient meanwhile may have for the first two or three weeks turbid urine, depending on the degree of coagulation necessary at the time of the operation. In the cases where the cuts are clean, the urine is perfectly clear in 48 hours.

As to anesthesia, Engel of Crile's Clinic used hyoscine for a while and thought it was fine. Then he found patients in whom he failed with this method. He now employs low spinal. We use sacral and paravertebral, and borocaine topically in the urethra with preliminary morphine. Some of the patients manifest a slight degree of discomfort, but for the most part we have very satisfactory anesthesia from that method and regard it as safe.

Concerning the question of disposition of the pieces removed—there is a good reason why they all come out with the Davis method because they are completely cooked, and adhere to the loop. Ours do not always come out because they are not cooked. They should be removed either instrumentally or by irrigation. One should be particularly careful about that. Please remember that you must have a rapid inflow to keep the field clear. At times there may be three or four bleeding points making the field cloudy and the visualization bad, but if there is a rapid inflow one can keep the field clear, thus enabling one to get at these points and coagulate them. I have paid no attention to these pieces. This is a mistake. Patients usually void them, but in occasional instances pieces plug the catheter. It may therefore be deemed advisable following the operation or before the patient goes home to pass an endoscope and see if there are any pieces there and take them out.

A RADIO MESSAGE

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ous to the blood circulatory system, or the heart and blood vessels. The exact rôle which these and other factors play in paving the way for the development of incurable heart disease is, as I have intimated, not known, but this significant fact is known, namely, that with reduction in weight to normal level, all these possibly harmful factors disappear and the prospective candidate for heart disease loses his candidacy and comes to be in every respect normal. You will note that I say the "prospective candidate" may return to a normal state, for obviously after the heart disease has developed, the weight reduction will not bring about a cure; then the shedding of fat can only alleviate symptoms. The old adage of an ounce of prevention being better than a pound of cure is strikingly applicable here. What is the warning signal of approaching heart disease in a fat person? My reply would be, the obesity. It just so happens that the symptoms produced by simple obesity so closely simulate the symptoms produced by beginning heart failure that the picture of the early heart failure is entirely obscured. For example, increasing shortness of breath, a frequent accompaniment of obesity, may be at the same time a symptom of heart inefficiency. Therefore, let it be repeated that the warning signal of approaching heart disease in a fat person is the fatness.

Another condition which goes hand in hand with obesity, inseparable companions, as it were, is diabetes. Among one group of two thousand patients with diabetes there was not a single person more than thirty per cent underweight. Seventy-six per cent of this group of patients were overweight, fifteen per cent were normal weight, and only nine per cent were underweight. In another group of one thousand patients with diabetes, there was no patient who was more than twenty per cent underweight. Many studies have shown diabetic tendencies in fat people. Obesity appears definitely to be a precursor of diabetes. People get fat and then develop diabetes. In this connection there is cited an interesting narrative in a book on diabetes by a famous authority. I quote from the Treatment of Diabetes Mellitus by E. P. Joslin. Published by Lea & Febiger, Philadelphia, 1928; page 161:

"On the street of a certain peaceful New England village there once stood three houses side by side, as commodious and attractive as any in the town. Into these three houses moved in succession four women and three men, heads of families, and of this number all but one subsequently succumbed to diabetes. The remaining member of the group died of cancer of the stomach at the age of seventy-seven years. A search for the cause of these deaths, untimely in the majority of instances, led to the accumulation of data on which this study of obesity was based.

"Although six of seven persons dwelling in these adjoining houses died from a single cause, no one spoke of an epidemic. Contrast the activities of the local and State boards of health if these deaths had occurred from scarlet fever, typhoid fever, or tuberculosis. Consider the measures that would have been adopted to discover the source of the outbreak and to prevent a recurrence. Because the disease was diabetes and because the deaths occurred over a considerable interval of time, the fatalities passed unnoticed. Even the insurance companies failed to grasp their significance, and yet probably no group of individuals in the community carried pro rata a higher amount of insurance than did these six diabetics."

At the time these individuals lived, ideas of exercise for pleasure and the benefit of the body had not penetrated this rural region. Consequently in

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THE PROBLEM OF DIAGNOSIS AND TREATMENT OF PROSTATIC CONDITIONS*

BY J. DELLINGER BARNEY, M.D.†

WERE I to discuss at length all the pathologic conditions occurring in the prostate for which patients seek relief, this paper would far exceed the time at my disposal this evening. I shall, therefore, confine my remarks chiefly to the most outstanding lesions of the prostate, especially those which offer particular difficulties in diagnosis and which bring up perplexing problems of treatment. These questions interest a large proportion of the profession whether they are general practitioners, general surgeons, internists or urologists.

The subject can be discussed roughly under three headings, namely, inflammatory, adenomatous and neoplastic.

Low-grade infection of the prostate is to be found in a very large majority of men. It may and often does persist over a long period of time without symptoms either subjective or objective. It may be, and often is, discovered only by accident in the course of a thorough routine examination. For this reason, if for no other, a careful examination of the prostate should be made in every man regardless of his reason for consultation. One never can tell whether such an examination will at least help to solve the problem of his complaint. Although such an examination may reveal no demonstrable abnormality in the size or consistency of the prostate, a drop of the expressed secretion may show pus in greater or less quantity, the cells being either free or in clumps. The presence of pus indicates at least a chronic infection, this being due to ancient or still extant foci of infection such as teeth, tonsils or sinuses. It goes without saying that a gonorrhea acquired in youth or even more recently, and perhaps forgotten by the patient, will account for the presence of pus. But even so, the search for the gonococcus may be and often is futile. Long after the gonococcus has disappeared, infection is carried on by other organisms, especially the pyogenic cocci or the colon bacillus. While such an old and low-grade prostatitis may continue for years without symptoms, it will often be found to be a causative factor in the production of arthritis, general lassitude, or simply in the presence of a few pus cells in the urine discovered by some lynx-eyed insurance examiner.

In contrast to this the acute infections of the prostate declare themselves at once and in unmistakable terms. Here the patient is disturbed, often to a marked degree, by frequency both by day and by night, by dysuria, especially of the terminal variety, by urgency, sometimes so marked as to be mistaken for incontinence, and by the absence of that sense of well-being which should follow normal urination. Not only this but there may be hematuria of greater or less degree, especially that which immediately follows the act of micturition. There is also often a sense of heat and pressure in the perineum. The urine in this unhappy state generally contains a considerable amount of pus, and as has been indicated, blood in greater or less amount, but sometimes only microscopic. Anorexia, pyrexia and general depression may accompany this condition. While the prostate may feel quite normal to the palpating finger, it is usually unduly, often acutely tender, and also has an abnormally soft or "doughy" feel. It may also be considerably enlarged.

A further development of such an acute infection may lead to actual abscess formation. This may be of any degree of severity from that which can be surmised if not detected by a feeling of irregularity of contour and increased consistency, and by almost any extent of enlargement, distortion of shape or change in consistency. In advanced cases the finger can detect definite fluctuation in one or both lobes and in one or more areas. Under such circumstances the patient complains not only of the various urinary disturbances already referred to, but also may complain either of a sluggish stream or of partial or even complete urinary retention. While these acute infections of the prostate may be the result of an invasion by the gonococcus, I think it should be understood that they may also arise from innocently acquired pyogenic organisms.

While it is true, as I have already pointed out, that infection of the prostate is an extremely common finding in men of all ages, and while it is also true that the pathologist frequently states in his examination of the prostate removed at operation that it shows evidences of chronic, perhaps acute, inflammation, there is no indisputable evidence that this infection favors the development either of the adenoma or the carcinoma which is seen in old age. Just what does cause these changes is still under investigation, but that the pituitary gland has an influence, at least upon the development of adenoma, seems now to be possible.

The treatment of these infections of the prostate naturally varies with their degree or extent. The low-grade, chronic prostatitis will eventually yield to persistent, thorough and frequent digital massage, supplemented by irrigations of

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the urethra and bladder. In my opinion the use of sounds or dilators is not only unnecessary but may also be harmful. Nor must one suppose that the infection will clear up with a few treatments. Massage may have to be done for several weeks, probably several months. The acute infections must be handled with caution. Until they have very definitely and permanently subsided into the chronic and quiescent stage, hot sitz baths, hot rectal irrigations, rest in bed, together with sedatives either by mouth or in the form of rectal suppositories are indicated. In the event of abscess formation, especially with urinary retention, an inlying soft rubber catheter may be necessary. On the other hand one should be prepared at any time to drain the abscess by operative means. While it is true that most prostatic abscesses will eventually subside either by resolution or by rupture, it is not always the wisest course to rely too much upon nature. The abscess may and usually does rupture into the urethra, producing a profuse and rather protracted urethral discharge. In a few cases rupture into the rectum will occur and here there is always a possibility of the subsequent development of a recto-urethral fistula. What is most important to remember, however, is that in certain, but fortunately few, instances the abscess will rupture into the retroperitoneal space, producing a cellulitis which may end fatally. It is essential to keep this possibility in mind and if a prostatic abscess does not soon yield to expectant measures, then it should be drained, preferably by an external urethrotomy incision with digital rupture of the abscess cavity into the posterior urethra. Whether or not the acute infection of the prostate has been subdued by palliative or surgical measures there remains a large amount of detritus to be evacuated by the same long-continued course of massage which was referred to earlier. It is therefore clear that infection of the prostate, no matter how latent or of what duration, is a difficult thing to treat.

In conjunction with infections I must briefly consider prostatic calculi. These may occur in the young adult as well as in those at or past middle life. They may be discovered quite accidentally, usually by x-ray, sometimes by rectal examination when the unusual nodularity and stony hardness of the organ or the elicitation of crepitus will reveal their presence. Calculi may cause no subjective symptoms whatever; the continued presence of more or less pus in the urine may lead to their discovery. In the absence of symptoms or until their onset no treatment is of value, nor is it necessarily indicated. If and when pyuria increases, especially when accompanied by perineal pain, frequency and dysuria, removal of the calculi must be considered. Like calculi of the upper urinary tract, those of the prostate increase in size with more or less rapidity, and may finally encroach so much upon the prostate as to destroy it completely. In fact, in operating upon these cases one is struck by the fact that the gland is represented only by one or several thin-walled cavities. In view of these findings one often finds himself in a quandary as to whether and how long to adopt a *laissez-faire* policy and whether to advise the rather major operation which is necessary for the removal of the calculi. Each case presents its own problem.

Turning now to benign hypertrophy or adenoma of the prostate we find ourselves in a large field. Let me say at the outset that the use of the term "obstructing" is better than "hypertrophy" for the reason that certain very large prostates cause little or no obstruction, while even a very small adenomatous growth will sometimes lead to great discomfort or even complete retention. In fact the atrophic but fibrous prostate may cause more marked symptoms than any other type. It is or should be generally understood that the absence of hypertrophy of the prostate as shown by rectal examination should not throw one off the track. The large median lobe cannot be detected by this means, nor can one exclude the so-called "prostatic bar," either of these conditions leading to the most pronounced symptoms. It is necessary, therefore, to consider the case from various viewpoints. The mere fact of comparative youth does not necessarily exclude the possibility of an obstructing prostate. It may occur in a man under fifty. Nor can one exclude it, as I have already indicated, solely by rectal examination. The urine may be entirely normal even with symptoms of long standing. It would, therefore, appear that a careful review of subjective symptoms is most important. These consist of persistent and increased frequency of micturition, especially nocturia, which may occur from one or two to five or six times. The stream is slow and sluggish like molasses from a jug. If infection of the bladder has occurred, these symptoms, especially frequency, may be accompanied by urgency and dysuria. Not infrequently, more so in the benign than in malignant cases, hematuria, especially of the terminal variety, may have occurred. In such a case one must be very sure that the hematuria is not of renal origin. The patient may also mention the fact that he does not feel as if his bladder were empty after micturition. Having elicited such a history and with a prostate which by rectum shows the typical smooth, elastic, nontender enlargement one has no reasonable doubt as to the diagnosis. Under these circumstances one wants next to determine not alone if residual urine is present, but what the amount of it is. This is particularly true, and even more important, in those cases which show no demonstrable change in the prostate on rectal ex-

amination. The moderately distended bladder may generally be detected by careful palpation of the lower abdomen, but sooner or later the patient must be catheterized. I say sooner or later because I have found it unwise to pass a catheter into an uninfected bladder at the time of the first examination. The patient should first be given an efficient urinary antiseptic for some days previous to this procedure. Sooner or later also it may be necessary to perform a cystoscopic examination, but this should most certainly be postponed until the patient is in a hospital either in anticipation of operation or so that any reaction resulting from the examination may be properly handled. The procedure cannot be safely done in the office.

But are we sure that the symptoms are not due to cancer of the prostate? Statistics from various sources show that this disease is found in from about fifteen to nearly twenty-five per cent of all cases of prostatic obstruction. In other words one out of about every five or six men with obstructing prostate has cancer. In the typical case the gland is not only enlarged but is also of a stone-like consistency. The enlargement may involve one portion more than another and the induration may extend beyond the reach of the finger in the region of the seminal vesicle on one or both sides. The contour of the prostate is nodular and its normal mobility and sense of elasticity have gone. While this is the picture in the well-defined case, it is by no means always present. One may find a gland essentially normal except for one or two firm nodules protruding from one or the other lobe, or at the apex of the prostate just within the anal sphincter. The consistency is uniformly but definitely increased. There are also cases which deceive even the most experienced examiner, where because of infection or congestion or both, the overlying tissues are so thickened as to mask completely the actual state of affairs. That this is a fact is generally recognized by the prostatectomist. On performing a cystotomy in the course of a two-stage suprapubic operation, one notes the size of the prostate and its consistency. At the time of the prostatectomy, days or weeks later, it is almost always found that the gland has decreased markedly in size due undoubtedly to the relief both of infection and congestion. At this time rectal examination will show the same changes to have occurred and one will sometimes be able to make a diagnosis of cancer where it was previously impossible to do so. A diagnosis of cancer is sometimes strengthened, if not confirmed, by the fact that the passage of an instrument, even a soft rubber catheter, elicits undue tenderness at the bladder neck. At times, perhaps in the more advanced cases, the instrument is held up at this point either by the tortuosity or constriction of the lumen. It is recognized, of course, that no examination is complete without x-ray. This may show unsuspected metastases in the bones, especially those of the pelvis and of the lumbar spine. Such metastases are found in a very large percentage of the cases at the time of their first examination. Cancer of the prostate is often most insidious in its onset and misleading in its symptoms. There may be no symptoms whatever, or only those of minor import, associated with the bladder. The patient may in fact have already consulted an osteopath, an orthopedic surgeon or a neurologist for pain in the back or along the course of the sciatic nerve. I do not doubt that many cases of so-called lumbago or sciatica occurring in men are due to the metastases of cancer of the prostate. In one case, seen in consultation, the presenting symptoms were progressive weakness and loss of weight, together with complete paralysis of the legs. Rectal examination showed an unmistakable cancer of the right lobe of the prostate. Autopsy showed what had been demonstrated during life, the presence of an extradural nodule of metastatic cancer in the spine. This patient had no urinary symptoms whatever from first to last. Early in his illness he had been treated intensively for "arthritis". One must, therefore, be constantly on the alert for these bizarre manifestations of prostatic cancer. Furthermore it is important to recognize the fact that while cancer of the prostate is generally of the scirrhous or adenocarcinomatous type, it may rarely be of the medullary type. In this event its consistency may be mistaken for that of the benign adenoma. Also it must not be forgotten that sarcoma, although extremely rare, may occur and that masses of lymphoblastoma growing around, if not in the prostate, may simulate either benign or malignant forms of prostatic obstruction in the character of both its subjective and objective symptoms. Two cases of lymphoblastoma of the prostate occurred within a year at the Massachusetts General Hospital. Another point to consider in the diagnosis of obstructing prostate is that both adenoma and carcinoma may and not infrequently do occur together, the adenomatous growth sometimes completely masking the malignant portion. Also in this connection, it is important to realize that even though there is no suspicion of malignancy whatever either before or during operation, the careful pathologist may discover an area of carcinoma sometimes in the median, more often in the lateral lobe. This observation occurring at times in the experience of those who are doing prostatic surgery and recently the subject of a paper by Bugbee (*Jour. of Urol.*, Oct. 1929) would indicate that the teaching that prostatic cancer originates in the posterior lobe is not always true.

It is now appropriate to take up the question

of treatment of obstructing prostate. This all depends upon the degree of obstruction, the nature of the obstruction, whether benign or malignant, and the condition of the patient. At the outset it should be borne in mind that in these cases, no matter whether benign or malignant, there is always more or less kidney damage resulting from infection or back-pressure or both, and that the patient is toxic to a greater or less degree. Not only this, but he is generally well past middle life and therefore has arteriosclerosis with damage of the myocardium. All this may be so pronounced and of such long standing that he is the poorest possible surgical risk. The first indication, therefore, is for kidney and bladder drainage in order that elimination of accumulated toxins may be immediate and complete. In the event of an acute retention with marked overdistention of the bladder, any sudden and complete emptying of the viscus may result in anuria, uremia and death. Gradual decompression is therefore important, this being done either by fractional catheterization or by siphonage so regulated as to keep the outflow a little greater than the inflow. It may take from two to three days to get the bladder completely empty. In other cases with only partial retention, drainage may be accomplished by either an inlying catheter or by suprapubic cystotomy. In patients in relatively good condition, with not over six to eight ounces residual and with either a clean or only moderately infected urine, catheter drainage is generally satisfactory. In such cases the preoperative preparation may be reasonably short, perhaps one or two weeks. Where the obstruction has been more complete and of longer duration, the patient in poor condition and the urine grossly infected, cystotomy is in my opinion the best procedure. A suprapubic tube can be kept in place for an indefinite time, whereas the inlying catheter can be used for only a relatively short time. Meantime every effort should be made to increase elimination of retained toxins by the administration of as much liquid as possible. Roughly speaking, if the patient can take from one to two glasses of water or other liquid every hour so that his intake is somewhere around one hundred and twenty ounces in the twenty-four hours and if his output rises to something over one hundred ounces, one can feel satisfied. If, however, he cannot take this amount of liquid without discomfort and disturbance of digestion, then he must be given normal saline or two per cent glucose solution either under the skin or intravenously. In some patients the administration of 1000 or 1500 c.c. once or twice daily for two or three days will turn the scales so that he can get along thereafter with what liquid he can take by mouth. In the very toxic cases this treatment must be continued for a much longer time. During this preoperative treatment, x-rays of heart and lungs, as well as of the urinary tract, after the intravenous administration of skiadan or neoiopax, will give information of the utmost importance. Here I refer to those occasional instances where an obstructing prostate and a pathologic kidney condition, generally neoplasm, may occur together. The hematuria or pyuria may be of renal rather than of bladder origin. A complete blood study should be made and a repeated examination of the blood chemistry undertaken as well as frequent phthalein tests. The patient should also be completely digitalized. He should be gotten out of bed as early as possible with the idea of avoiding circulatory hypostasis. Every effort should be made to improve every function and to bring it to its highest possible point of efficiency. Plenty of time should be allowed for the patient to get as nearly normal as possible, a difficult thing sometimes amidst the exhortations of the patient on the one hand and of his family on the other to bring the case to a speedy conclusion. The preoperative care of the prostatic patient is perhaps the most important feature of the whole case and upon its efficient execution depends the success of the outcome to a considerable degree. The surgeon must be at the same time a good physician, or what is even better, he should have the coöperation of a good internist. More than in any other branch of surgery the patient with prostatic obstruction must be studied and treated from a medical standpoint. At the same time the surgeon must not allow himself to lean too heavily upon the laboratory or upon his medical colleague. That intangible sense, known as surgical judgment, should enable him to recognize the *status quo* of the patient more accurately than any outside aid.

As to the particular type of operation to perform, discussion here is futile. There are those who will do only a suprapubic prostatectomy, some by the one-stage, others by the two-stage method; there is another faction which listens to nothing but the perineal route. Others, perhaps more wisely, select the type of operation which seems best suited for the case in hand.

A recent study by Swan and Mintz (*Jour. of Urol.*, July 1931) of one hundred and seventy cases of benign prostatic hypertrophy occurring from 1926 to 1930 at the Massachusetts General Hospital showed a total mortality of 5.8 per cent. In view of the fact that these cases were all of the type seen in a large charity clinic this mortality is not at all unsatisfactory. In detail the mortality of the one-stage suprapubic operations was 4.8 per cent, of the two-stage operations 6.6 per cent, and of the perineal operations 6.2 per cent. The lower figure for the one-stage method may be accounted for by the fact that this operation was done on what were properly considered the best risks.

The treatment of cancer of the prostate opens a big field for discussion. There are not a few

prominent urologists who employ only palliative treatment. If and when the time comes that obstruction occurs, they put the patient on a catheter life or insert a permanent suprapubic tube. Others resort to surgery, most to the perineal, some to the suprapubic operation. The object is, of course, to remove enough tissue to enable the patient to void comfortably. There is no question that this can be accomplished better by the perineal route. Some do what is known as a radical or total perineal prostatectomy in the vain hope that once in a while an early case will be cured. While these efforts are commendable, there is, so far as I know, no case of proved cure of prostatic cancer demonstrated by autopsy. That some cases may live for several years after this operation, apparently free from cancer and certainly free from urinary obstruction, is perfectly true. On the other hand many patients have lived as long a time and as comfortably after partial perineal or suprapubic operations. Observers of wide experience like Bumpus and Barringer agree that most cases will live only about two years after being first seen regardless of the form of treatment. It is obvious, therefore, that since he cannot prolong life or effect a cure, the surgeon should subject his patient to the simplest form of treatment, operative or otherwise, which will keep him comfortable. Experience has shown that the degree of malignancy and the particular behavior of each individual prostatic cancer determine the issue to a large degree. As yet no accurate method has been devised to determine this point in advance.

In recent years radium, either in the form of the metal or emanation, has played a conspicuous part in the treatment of prostatic cancer. The insertion of needles containing radium through the perineum into the prostate seems to have fallen into disrepute. At best it was only palliative; at times it only aggravated the situation. More recently some, notably Barringer, fill the prostate with radium seeds through the open bladder, remove enough obstruction by punch or otherwise and seem to produce excellent results. Time will prove the value of this method of attack. I have tried all these methods including suprapubic and perineal operations and the insertion of radium seeds. None have given satisfaction, but I have often found that the least extensive surgical procedure sometimes gives the best results. Each case offers a different problem and will pursue its own particular course. I cannot emphasize too strongly my belief that in the presence of so universally fatal a disease as prostatic cancer the least we can do and at the same time keep the patient comfortable is the best policy. This is particularly true in those cases with metastases which, as I have already pointed out, are present in a large percentage of cases when they first come to us.

While deep x-ray therapy has no curative value, I think it is an important adjunct in the case of these unfortunate men. It often relieves pain; it sometimes decreases urinary disturbances and it certainly helps to keep up the hope of certain patients to a marked degree.

Now, however, a still newer method of treating prostatic obstruction, both benign and malignant, has been presented to us. I refer to the work of Davis of Charlotte, North Carolina and McCarthy of New York. Each has developed what is called a prostatic "resectoscope", this being a modified cystoscope with a loop electrode passed through its sheath. The secret of success lies entirely in the development of the diathermic unit which enables the electrode to cut under water and at the same time to control hemorrhage by coagulation. Earlier punches and resectoscopes which relied upon an electrical current for the removal of tissue were apt to be unsuccessful owing to the fact that the tissue was burned and not cut out. The originators of these instruments, as well as a few others in various parts of the country, have now had a considerable and successful experience with them. While it is claimed by some that the operation of prostatectomy, whether perineal or suprapubic, as we now know it will be done away with entirely, the best opinion at this time seems to be that diathermy will find its use chiefly in the treatment of (a) prostatic cancer, (b) very feeble patients who cannot stand the usual operation, (c) early cases of prostatism to prevent them from going on to obstruction with all the damage that this brings about. My very brief experience with this method of treatment has convinced me of its value in cancer and apparently in certain benign obstructions, chiefly those of the median bar or fibrous type. The fact that there is little or no mortality and that the postoperative residence in the hospital is generally but a few days is a strong and favorable argument. My experience thus far with seven cases has met with one fatality. This was a feeble old man with carcinoma and with metastases. The amount of tissue removed at the first sitting was not sufficient. At the second sitting a much greater amount was removed. Even this was insufficient, for the patient was still unable to void. About ten days later the patient had a fatal pulmonary embolus. Autopsy showed a tremendous amount of prostatic cancer still remaining. It was obvious that I had not removed enough to produce results. It is possible also that after wider experience I should have decided that this case was unsuited to resection. The specimen was of great interest as the area from which sections were removed showed an extraordinary amount of sloughing and necrotic tissue still remaining. This case was done with the Bovie unit and the Davis Stern resectoscope. My other cases have all re-

sulted favorably, even brilliantly. Those with acute retention have left the hospital with no residual or only a trifling amount; the same thing may be said of those having only a few ounces of residual before operation. Postoperative hemorrhage occurred in but one case, but this was easily handled by frequent irrigations and by evacuating clots. All cases have had a sharp rise of temperature the night of and for a day or two after operation. In one or two it has continued longer. In all it has been obvious that bladder drainage was required for several days.

I am convinced that under proper conditions resection of the prostate is an efficient and safe procedure. Success will depend quite as much upon the proper selection of cases as upon the experience and ability of the operator in the recognition and proper handling of the pathologic conditions found at the bladder neck.

BASAL METABOLISM OF TWINS*

BY FRITZ B. TALBOT, M.D.†

THE great similarity in appearance, physical development, and characteristics of twins makes them ideal subjects for comparison, especially when they are of the same sex. The fact that they also live in the same environment and probably eat the same quality of food eliminates social causes of differences in physical development and their susceptibility to the same diseases usually results in the same physical disabilities. The basal metabolism of a series of twins was obtained to see if their heat production was as similar as their appearance and general characteristics.

Two types of twins are recognized; those twins which develop from a single ovum are known as identical (monozygotic or monoövular) twins, and those which develop from two independent ova are fraternal (dizygotic) twins. This difference can be determined at birth by examination of the chorion and placenta, the most dependable factor being whether the newborn infants are covered by single or individual chorion arising from one placenta. Records are valueless, however, unless the condition of the septa is described, without which an unquestionable diagnosis is impossible. Since there is no such record available for the series of twins reported here, they are recorded only as a group of twins without definitely separating the types.

A clinical estimate, however, gives some idea of the probability as to whether the cases are those of identical or fraternal twins. As the name implies, identical twins are so similar that it is nearly impossible to tell one from the other. They are always of the same sex, have the same or nearly the same color of the eyes, hair, complexion; they have the same or nearly the same features, body build, and finger, palm and sole prints, and their emotional and temperamental characteristics may be indistinguishable. If these twins are placed in different environments their weight and growth may be affected, but their physical and mental characteristics remain unchanged[1]. The fraternal twins, on the other hand, may have different sex, characters, and physical development. The greater difference seen in the fraternal than in the identical twins is well illustrated by the work of Leven[2] who found by finger-prints that there was a greater difference in the type of pattern and in the number of ridges in the former than the latter, but Lauterbach[3], Abonai[4], and Reichle[5] came to the conclusion that palm and sole prints failed to give conclusive proof of the type of twins.

Other efforts to increase the knowledge of the types of twins have included anthropological measurements, studies of their teeth[6], of the pathological conditions in identical twins such as retinoblastoma in homologous eyes[7], diabetes[8], cryptorchidium and inguinal hernia[9], congenital heart[10], chronic lymphatic leukemia[11], amyotonia congenita[12], manic depressive psychosis[13], and other conditions[14] which have appeared in the same forms and manners in both of identical twins.

Although fraternal twins are useful subjects for comparison, the question arises whether differences of sex, character, and physical development will be enough to make marked differences in the metabolism. The metabolism of identical twins, on the other hand, should be the same.

Although no definite data are available to differentiate the fraternal and the identical twins in this series, it is clear that those of different sexes could not have been identical twins. It is also clear that twins Cl. (No. 23), as well as many of the others, probably were identical twins*. Observations No. 23 and No. 24 on one pair of twins were particularly interesting as they were of the same sex, had epilepsy which appeared in both at the same time, responded favorably to the ketogenic diet in the same way, and the symptoms were completely relieved at the same time by the same treatment.

The basal metabolism was obtained in the usual manner. All of the infants were studied in the Children's Metabolism Laboratory at the Massachusetts General Hospital, using the same methods reported in earlier papers. The metabolism of most of the older children was obtained on the Benedict Portable apparatus in the writ-

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*Nos. 11, 15, 23.

er's office†. The infants were sometimes convalescent from mild illnesses, while the older children, with the exception of twins No. 23 and No. 24, who were being treated for epilepsy, were all normal children who came voluntarily to have their metabolism determined. These data are given in the following table:

†By Ebba C. Blomquist, R.N.

In this series the metabolism of 18 different pairs of twins was determined in 24 observations. In 17 pairs of tests it was so close that taking into consideration the possible errors of the method, they may be said to be practically the same. Observation No. 14 gives the only pair which varied more than 10 per cent of their average and if 10 per cent is accepted as the limit of nor-

TABLE I
BASAL METABOLISM OF TWINS*

Case Number	Subject	Age	Sex	Height	Weight	Calories Per Twenty-Four Hours			Temp.	Activity†
						Total	Per Kilo	Per Sq. M.‡		
				cm.	kg.				°F.	
1 Ab.	I (premature)	10 days	M	42.5	1.757	54	30.9	408	99.0	....
1 §	II (premature)	10 days	F	43.0	1.644	46	27.7	321	98.2	....
2 Ab.	I	24 days	M	45.5	1.673	98	58.7	663[1]	98.8	....
	II	25 days	F	46.8	1.97	93	47.0	648[1]	98.8	....
3 Ma.	I	6 wks.	F	47.7	2.268	185	81.6	954	98.8	I
	II	7 wks.	F	45.5	2.296	157	68.2	885	99.6	I+
4 Gl.‖	I (premature)	2⅓ mos.	M	57.4	4.082	280	68.7	1038[2]	99.2	III
	II	2⅓ mos.	M	55.3	3.969	241	60.8	909[2]	....	II
5 Nor.	I	3 mos.	F	56.0	3.686	261	70.9	1041[1]	99.8	I+
	II	3 mos.	F	54.2	3.175	237	74.7	1049[1]	98.8	I
6 Ca.	I	5 mos.	F	53.6	3.076	297	96.5	1368[1]	99.0	III+
	II	5 mos.	F	54.2	3.345	245	73.1	1063[1]	98.6	I+
7 McC.#	I	6½ mos.	F	62.9	4.621	367	79.5	1217[1]	98.4	I
	II	6½ mos.	M	64.5	5.415	433	80.0	1387[2]	99.4	I+
8 Gl.‖	I	10½ mos.	M	67.6	6.861	451	65.8	1268[1]	99.3	I
	II	10½ mos.	M	69.3	6.733	499	74.0	1344[1]	99.7	I
9 Fo.	I	19 mos.	M	74.1	7.725	483	62.5	1153[2]	98.8	I+
	II	19 mos.	M	75.4	8.000	474	59.3	1138[2]	98.8	I
10 Cr.	I	19 mos.	M	79.4	9.724	486	49.9	1031[2]	100.0	I
	II	19 mos.	F	80.0	10.008	521	51.9	1040[2]	101.8	I
11 Ba.	I	20 mos.	M	77.0	9.64	717	74.3	1478[2]	98.8	I
	II	20 mos.	M	77.3	9.639	660	68.5	1318[2]	101.2	I
12 McC.#	I	21 mos.	M	83.2	12.913	700	54.2	1276[1]	99.4	I
	II	21 mos.	F	77.8	11.2	739	66.0	1552[2]	99.0	I+
13 Gl.‖	I	2⅓ yrs.	M	80.7	10.773	614	57.0	1285[3]	99.3	I
	II	2⅓ yrs.	M	78.3	8.533	566	66.3	1344[2]	99.8	I
14 Pi.	I	5¾ yrs.	M	105.3	17.237	731	42.4	955[2]	....	I
	II	5¾ yrs.	M	107.0	18.782	925	49.3	1138[2]	....	I
15 Do.	I	7½ yrs.	F	122.2	22.793	1192	52.3	1344[1]	....	I
	II	7½ yrs.	F	122.3	21.617	1219	56.4	1403[1]	....	I
16 Cu.	I	10½ yrs.	F	141.0	35.58	1383	38.9	1134[2]	98.2	I+
	II	10½ yrs.	F	139.0	31.31	1351	43.1	1196[3]	98.9	I+
17 Sma.	I	10½ yrs.	F	133.0	29.03	1330	45.8	1214[2]	98.7	I
	II	10½ yrs.	F	134.0	27.273	1162	42.6	1121[1]	98.6	I
18 Wi.	I	11 yrs.	F	145.5	51.427	1456	28.4	1024[1]	....	I
	II	11 yrs.	F	148.8	51.476	1543	37.2	1250[1]	....	I+
19 Bi.	I	18¾ yrs.	F	153.1	51.0	1430	59.6	972[2]	98.6	I
19 ♦	II	18¾ yrs.	F	156.2	52.5	1555	64.8	1036[2]	98.4	I
20 Bi.	I	20 yrs.	F	154.0	50.3	1226	51.1	840[2]	98.0	I
	II	20 yrs.	F	158.1	52.4	1596	66.5	1056[2]	98.4	I
21 Ke.	I	12 yrs.	M	140.6	36.9	1214	50.6	955[2]	98.4	I
	II	12 yrs.	M	141.8	38.5	1183	49.3	902[2]	98.4	I
22 Ye.	I	14 yrs.	M	147.5	50.9	1248	52.3	864[2]	98.8	I
	II	14 yrs.	M	157.5	42.1	1272	53.0	912[2]	98.2	I
23 Cl.	I	10½ yrs.	F	131.5	31.2	1180	49.2	1072[2]	98.6	I
23 ††	II	10½ yrs.	F	131.2	27.7	1140	47.5	1120[2]	98.6	I
24 Cl.	I	10 yrs. 11 mos.	F	134.0	32.5	1195	49.8	1056[2]	98.4	I
	II	10 yrs. 11 mos.	F	133.7	29.8	1118	46.6	1046[2]	98.2	I

*Since the twins were living together, eating the same food and in the same surroundings, it seems reasonable to assume that those of the same sex and height were probably identical twins. This probability became almost a certainty when their characters were the same. Twins No. 18, for example, although of the same sex, were of definitely different heights; one was phlegmatic and the other highstrung. They were probably fraternal twins.

†Activity estimated according to Benedict and Talbot, I being definitely basal, II slight motions which are not sufficient to increase the metabolism to any extent, and III activity sufficient to raise the metabolism.

‡(1) One period obtained; (2) two periods averaged; (3) three periods averaged.

††Twins with epilepsy; same children at different ages.

‖#♦Same children at different ages.

mal variation, these twins are the only exceptions in this series. Observation No. 20 varied just 10 per cent at the age of 20 years but at 18¾ years (Obs. No. 19) their metabolisms were much closer. The heat production per kilogram of body weight and per square meter of body surface corresponded equally closely despite differences in height and weight of the individuals. The heat production of twins Gl. (Nos. 4, 8, 13) was nearly identical at 2 1-3 months, 10½ months, and 2 1-3 years. The sex difference in heat production usually found among older children of the same age was not seen in this series because all of the children over six years were of the same sex. The metabolism of the majority of the twins corresponded as closely as do different periods obtained from a single individual[15]. It is therefore justifiable to conclude that the metabolism of twins as a whole tends to be the same if they are of the same sex. It is doubtful whether any difference will be found in their heat production unless marked differences in physical development appear.

Conclusion—The basal metabolism of twins corresponds very closely and in many instances is identical. Although it is probable that many of these figures were obtained from identical twins, the metabolism of fraternal twins was also very close.

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INCUBATION*

An Improved and Inexpensive Incubator for Premature and Hypothermic Infants

BY HERMAN H. LIVINGSTON, M.D.†

THE success in the care of premature infants depends largely on four factors, as follows: (1) proper maintenance of body temperature, (2) proper maintenance of body fluid, (3) proper nutrition, and (4) keeping the child free from infection. I am concerned only with the first two factors here.

Many premature infants do not survive the first twenty-four hours of life chiefly because they cannot maintain their own temperature. Occasionally a full-term hypothermic baby will succumb because it runs a subnormal temperature. These babies must receive artificial aid.

An old and popular method is the so-called blanket and heater method. The infant is wrapped in either oiled silk cotton and blankets or just cotton and blankets. Hot water bags or electric pads are placed about the bundled-up child which is placed in a crib or basket. The temperature of the baby must be frequently taken to make certain that it is not being overheated or that its temperature is not too low.

Professor E. Nobel of Vienna describes an incubator which he constructed for premature infants. It consists of a wooden box separated into two compartments by wire mesh. On one side there is an electric light bulb. On the other side the baby is placed with its head protruding through a hole cut in one end of the box. There is a thermometer placed upright and through the cover of the incubator.

A. H. Parmelee describes a similar apparatus with the electric light bulb above the child protected by a wire guard. In this incubator the child's head protrudes from the box as in the type of incubator built by Professor E. Nobel.

L. Moll describes an incubator which consists of a wire frame. From the top of this frame several electric light bulbs are hung. This frame is covered with a blanket. The baby's head protrudes from under the edge of the covering.

AN EXPERIMENT

In using the blankets and hot water bag method I watched the baby's temperature constantly. A thermometer was placed close to the infant's skin. With the baby wrapped in cotton and one blanket and surrounded with hot water bags at 120° F., the baby's temperature was observed for four hours. During this time the bags were frequently changed. The

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temperature of the infant in four hours went from 93° F. to 95° F. The rectal temperature went from 94.2° F. to 96° F. This temperature certainly is not compatible with the best conditions for premature infants.

THE INCUBATOR

This new incubator is an improvement on that built by Professor E. Nobel. Heat, moisture, as little handling as possible, and a means of administering carbon dioxid 5% and oxygen 95% are necessary for successful incubation.

This incubator is made of wood about three-quarters of an inch thick. The box measures on the inside: length 20 inches, width 12 inches, depth 12 inches. There is a foot-end and a head-end. The cover to the box is attached by two iron hinges. There is no bottom. In the center of the cover an opening is cut. This opening measures: length 6 inches, width 14 inches. It is fitted with glass. At the head-end a hole is cut 8 inches high and 6 inches wide. This is to allow for free circulation of air and also to permit feeding of the baby. (Fig. 1.) At this end of the box close to the top and in the corner, out of the way, is suspended a glass tube filled with water. At the foot-end of the box close to the top and in the midline is an electric light socket. It is fitted with a rheostat which screws into place. This rheostat is regulated by chains which are hung over the edge of the box under the cover, and which can be adjusted from the outside. A 60 watt bulb is screwed into the rheostat. A wire screen holder is constructed to pass below and in front of the electric light bulb. The screen holder is fitted with an asbestos screen about 8 inches wide and 12 inches long. (Figs. 1 and 4.) A small rubber tube enters the box from this end. It is attached to a tent made of transparent cellophane. (Fig. 1.) A thermometer is so suspended by means of a wire bracket from the underneath side of the cover that it can be seen through the glass in the cover.

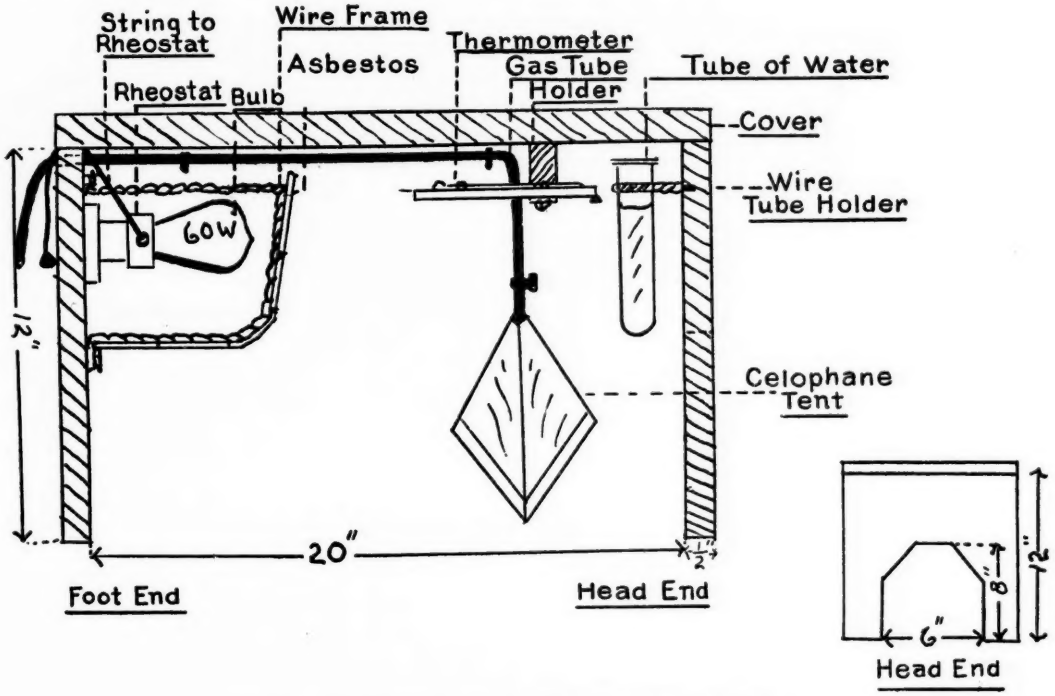

FIG. 1. Diagram from a side. Small insertion shows head end.

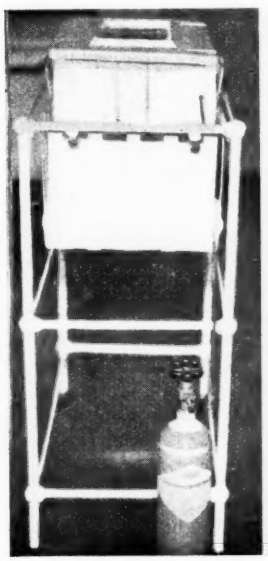

FIG. 2.

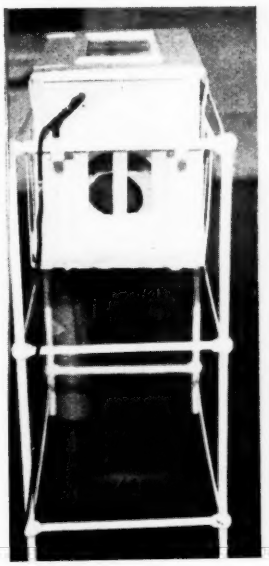

FIG. 3.

SOURCE OF HEAT

The source of heat is an electric light bulb of 60 watts. This heat is very drying so far as the baby is concerned. With a little experi-

ence the attendant can locate a point on the rheostat where the temperature of the box remains constantly between 98° F. and 100° F. The bright light is shielded by the asbestos screen which also acts to protect the occupant from the direct heat of the electric light bulb.

HUMIDITY

The source of heat is such that there is considerable drying of the baby's skin and actual dehydration may occur. The tube of water helps to keep the air moist in the box.

tent may be placed over the infant's head and the tank of CO_2 and O_2 mixture may be attached to the rubber tube and opened. The baby may be given this mixture for hours. This measure is also very valuable in preventing atelectasis in these weak babies.

USE OF INCUBATOR

This apparatus may be warmed up previous to an expected birth of a premature baby. Immediately after delivery the baby is placed in the incubator with only a diaper on. It may

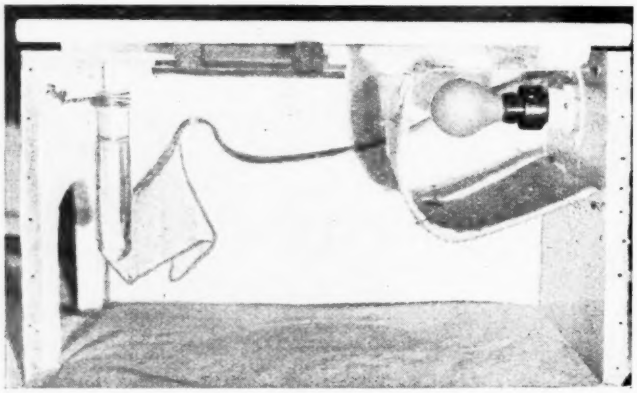

FIG. 4.

HANDLING THE INFANT

To dress the child, i.e., to remove the soiled clothes, the cover is lifted and the child is dressed without being moved from the box. To feed the baby, one may move the box down so that the head protrudes through the opening at the head-end. The cover need not be lifted and the baby need not be handled.

CARBON-DIOXID AND OXYGEN

In cases of hypothermic babies or premature babies one often notices that the circulation is very poor, with cyanosis of the hands and feet. While the baby is in the incubator the cellophane

be kept there for weeks with a minimum of handling. Once regulated the temperature remains fairly constant.

This type of incubator has proved to be of great value in caring for premature babies in small hospitals where there are no facilities for larger types of incubators, i.e., heated rooms.

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A RADIO MESSAGE

(Continued from page 312)

this as in many other villages, though fortunately to a less extent now, the well-to-do were unusually fat. In fact, even today it is a common observation that country families tend more to obesity than their city cousins of similar means. It is well to remember that thin people past middle life do not develop diabetes.

There are other hazards of obesity. Fatness is thought by many to lead to the early formation of arteriosclerosis or hardening of the arteries. High blood pressure is very commonly associated with excessive weight, and recent studies indicate that the level of the blood pressure in such cases is lowered as the weight is reduced. Also to be mentioned among the companions of obesity are flat feet and various other orthopedic abnormalities, also varicose veins. It is hardly necessary to continue.

It seems that the most favorable weight for longevity in middle life is ten to twenty pounds below the average weight, and even thirty pounds below the average is safer than the average itself. It should be a source of great satisfaction to fat people, particularly those who have as yet fallen into none of the difficulties into which their ballast may lead them, to realize that they have within their power the means for avoiding all of these troubles of which I have spoken. Many people think of their obesity as an unavoidable or irremediable condition, and speak of the fact that it is a family trait, and that they have always been fat. In such cases it is usually the food and living habits which are inherited and nothing more, and it is these habits which are responsible for the obesity. These fat people are just as liable to the dangers of obesity as those who take on excessive weight late in life.

In general it may be said that all obesity is curable, that all fat people can be reduced, and that there are only rare instances of obesity in which simple dietary measures do not suffice for brilliant results.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 18331

BILIARY FISTULA FOLLOWING CHOLECYSTOSTOMY

SURGICAL DEPARTMENT

PRESENTATION OF CASE

DR. JOHN D. STEWART*: This is the case of a thirty-five year old married woman who was admitted twice, the first time two months before the second.

First admission. The past history may be passed over until four years before entry. At that time, following a period of pain in the right lower quadrant and the right upper quadrant radiating through to the back and associated with a little vague indigestion, she was operated upon, she said, for her ovaries and appendix. Following operation the pain was somewhat relieved, but the "indigestion" continued as before. During the course of the two years before entry she was troubled with repeated attacks of right upper quadrant pain lasting usually only half an hour or an hour and not radiating. With the pain she had vomiting. At times the pain was severe enough to require morphia from her own doctor. Between the attacks of pain she was troubled with a sense of epigastric discomfort and gaseous eructations after eating.

The present illness proper began three weeks before her first admission. At that time she was seized while at dinner with a severe attack of pain in the right upper quadrant, not radiating. Shortly afterwards she vomited. A doctor was called, and gave injections of morphine. Following this attack she was left weakened and had no appetite. She felt unable to be up and about. Five days before admission to the hospital her doctor noticed that she was jaundiced. Shortly afterwards apparently her stools were light colored. Her urine became deeply colored.

On admission to the hospital the patient on examination was a rather obese, jaundiced middle-aged woman. There were hemorrhagic excoriations over her body due to scratching. The heart and lungs appeared normal. The blood pressure was 130/75. There was a moderate degree of tenderness in the right upper quadrant and in the epigastrium, but no spasm. The liver edge was questionably palpable just to the right of the xiphoid. At the site of the old laparotomy scar was a rather large ventral hernia.

Laboratory studies showed that she had mild anemia of the secondary type. The urine showed a very slight trace of albumin, occasional hyalin and granular casts and bile. The stools were grayish and one guaiac test was strongly positive. The patient's bleeding time was two minutes, the clotting time thirty minutes. Her van den Bergh was 27 milligrams, the reaction being biphasic.

She was operated on under local anesthesia and gas oxygen. The gall bladder was found to be thickened and to have all the signs of recent inflammation. There were adhesions about it. The common duct was distended and contained a great deal of mucus and pus and several stones. The surgeon apparently felt at operation that inasmuch as catheters and probes could not be passed into the duodenum, there was some obstruction near the duodenal wall, and this was felt to be of inflammatory origin rather than an impacted stone. Following operation, which consisted of a cholecystostomy and drainage of the common duct, the patient made a satisfactory convalescence except that drainage of bile from the common duct catheter remained copious. After the catheter was removed the drainage continued, and when the patient was discharged she still had a biliary fistula. The stools before the patient left the hospital were grayish.

History of interval. Following discharge from the hospital she felt somewhat better for a while. About ten days before readmission, however, she began to vomit and from that time steadily lost strength. There was no pain, merely distress in the central part of the abdomen. The stools remained light colored.

Second admission. On readmission the patient had obviously lost weight since discharge and was considerably weaker than at the previous admission. She was not jaundiced. The biliary fistula was obvious and was draining persistently. The patient's mental state at this time was somewhat clouded. She would answer questions only drowsily.

The laboratory studies were not particularly important except that she had a greatly increased sedimentation rate.

It was obvious that she would have to be operated upon or else she would very soon die. Operation was done again under local anesthesia. This time the gall bladder was anastomosed to the duodenum. The operation was done with some difficulty. Following operation she was given a transfusion, but her temperature and pulse rate rose and she died within twenty-four hours of the operation.

*Assistant resident on the West Surgical service.

Clinical Discussion

Dr. Stewart: At the second operation a hard, irregular mass, not very large, was felt in the head of the pancreas and taken to be a carcinoma obstructing the common duct.

Dr. Richard H. Miller: There are a few comments I should like to make because the case is very interesting and very unusual. In the first place, when she came in with pain in the right upper quadrant and when she had another attack with persistent jaundice it seemed fairly obvious that the diagnosis was stone impacted in the common duct. The jaundice was very intense, more marked than Dr. Stewart led one to infer. She seemed almost yellowish black in color. Basing our decision on the findings of Dr. Linton that the preoperative use of calcium is of no particular value, we decided that it was not worth while to wait, and operated at once.

I expected to find one or more fairly large stones in the common duct and perhaps one impacted in the ampulla. To my surprise however on opening the gall bladder there were only three or four very small stones. Then on opening the common duct, which it was not difficult to do, instead of clear mucus or bile there was a milky fluid such as I have never seen before in the common duct. We decided that it must be to a degree infected and that it was really a mixture of mucus and pus. I should like to take this opportunity to object to the expression "white bile," because I do not think that is what we get. I think it is mucus without any bile at all. There were two or three tiny stones in the common duct. In an attempt to pass a probe into the duodenum we were rather unsuccessful. It was an unusual situation because it is difficult to account for biliary obstruction by such very small stones, which could not have been felt with a probe and hardly seemed big enough to plug the ampulla. The patient was quite ill, so a tube was sewed into the common duct and another into the gall bladder and nothing more was done.

During her convalescence after that operation and during the period that she was at home I felt that there was something quite unusual going on which had not been explained by my operation. Then, as Dr. Stewart said, she continued discharging bile, giving evidence of complete obstruction somewhere in the common duct.

When she came in the second time it seemed wise to explore her again, giving at the time a bad prognosis. The second operation was not very difficult. We felt definitely a small mass in the head of the pancreas. At the first operation that mass had not been obvious to the touch. It seemed to us that now the true nature of the mass had revealed itself and that in addition to gall stones, which were not causing obstruction, she had developed a new growth in the head of the pancreas. Experience has taught us that it is rare that chronic inflammation of the head of the pancreas produces an obvious biliary obstruction and cholemia severe enough to cause death. If obstructive jaundice of a severe type develops it means to the surgeon either stone impacted in the common duct or a cancer either in the head of the pancreas or perhaps in the common duct itself, but not a condition of chronic inflammation in the head of the pancreas.

Later at postmortem examination it was very difficult to be sure of the presence of new growth, and the question arose whether perhaps that mass was not chronic inflammation. I insisted however that I did not think it could be chronic inflammation. Later a definite cancer was proved to be present.

Her mental state was very bad when she came in the second time. Following the second operation, although everything went well she rapidly went to pieces and died.

There are certain things which are difficult to explain in these cases of long-lasting jaundice or loss of bile. There was an article written a short time ago by a surgeon whose name I forget, discussing sudden deaths after common duct operations. That article did not prove anything conclusive enough so that it was helpful to me in studying some of the cases I have seen. The writer did however record a fact which I have noticed, and I think many of us have, that after common duct operations on some of these desperately ill patients certain things happen which we cannot explain.

The second operation consisted of freeing up the gall bladder from its bed on the under surface of the liver, mobilizing it to a sufficient degree, making a little hole, sewing in a portion of a soft rubber catheter, then approximating it to the first portion of the duodenum and making an anastomosis in that place. We realized at the time that this was only a palliative operation, but we thought that if she survived she would have a few months of comfort during which bile would be getting into the duodenum and during which she would not have such serious digestive troubles and would not have jaundice.

Clinical Diagnosis (from hospital record)

Carcinoma of the pancreas.

Anatomic Diagnoses

Adenocarcinoma of the pancreas.
Obstruction of the common duct.
Chronic cholecystitis.
Operative wound: cholecystduodenostomy.
Arteriosclerosis.

Pathologic Discussion

Dr. John I. Bradley: The autopsy I regret to say does not provide an answer to the question of the cause of sudden death in these jaundiced cases. Our examination was however limited to the abdomen, so that the answer was probably just not uncovered.

Our findings confirmed the preoperative analysis of the case. The findings were unusual and interesting inasmuch as the tumor represents the smallest recognized carcinoma of the head of the pancreas that has come within my limited observation. The measurements were one by one by two centimeters. It was definitely palpable as a slightly irregular mass in the head of the pancreas adjoining the duodenal papilla. It is further interesting that the duodenum is described as dilated in the portion proximal to the ampulla of Vater and of normal diameter beyond that. The wall of the gall bladder was thickened, the bladder shrunken. The anastomosis was intact. There was no evidence of infection and the operative procedure was successful. The bile ducts contained no stones. The distal portion of the common duct just proximal to its opening into the duodenum showed slight constriction. The remainder of the duct was dilated, in places to 3.5 centimeters.

This section of the tumor shows under the low power a number of persisting isolated masses of pancreatic tissue surrounded by dense connective tissue, showing a moderate chronic and a slight acute inflammatory infiltration. In a number of areas there is diffuse infiltration of the tissue by poorly differentiated cells without structural organization. Definite tell-tale evidence of the malignancy of the lesion is found in the presence of tumor cells within the sheath of a small nerve trunk.

CASE 18332

CHOLECYSTITIS WITH CHOLELITHIASIS

Surgical Department

Presentation of Case

Dr. Paul W. Hugenberger*: This is the case of a fifty year old, 260 pound woman who entered complaining of epigastric pain and vomiting.

Two and a half years before admission she had experienced an attack of epigastric pain so severe that she rolled on the ground in agony. This was followed by an attack of vomiting lasting two hours and a half and a residual epigastric soreness lasting three days. She had had three similar attacks at wide intervals during the intervening two and a half years.

*Recently resident in the Pathologic Department.

Two days before admission she had a third attack. Morphia given by her physician failed to relieve the pain.

On physical examination she was found to be very obese. The heart sounds were faint and the action rapid. There was moderate tenderness with slight spasm in the epigastric region and the right upper quadrant.

The temperature was 101° and the pulse 126. The respirations were 35.

The white blood count was 33,200 on admission, 19,000 on the second day after admission. The hemoglobin was 90. The urine showed a slight trace of albumin and a few white blood cells in the sediment.

When she came into the hospital she continued to vomit, but improved slightly.

After ten days of preoperative care, operation was done. I will read the operative report: "Fat necrosis was found over the omentum and the pancreas, which was indurated and showed beginning necrosis. The gall bladder was full of stones. It was opened at its fundus and the stones scooped out. The bile did not appear purulent. There was no thickening or edema of the common duct. A finger was inserted through the inflammatory, edematous tissue of the gastrocolic ligament near the pyloric end of the stomach. In the region of the pancreas two or three pockets containing cloudy fluid were entered. A wick was inserted into this region and the gall bladder drained with a tube in the fundus. There was no free fluid in the abdominal cavity."

The vomiting stopped only to return unabated following operation. Pieces of necrotic pancreas drained through the operative wound. The nonprotein nitrogen was 140 on the thirteenth day after operation. Later it rose to 155, the blood sugar to 175.

Twenty days after the first operation a jejunostomy was done under local anesthesia. The temperature rose rather rapidly in the next two days from 100° to 105.5°. The pulse rose to 130. The patient died twenty-two days after the cholecystostomy and two days after the jejunostomy.

Clinical Discussion

Dr. Edward D. Churchill: Surgical treatment of this type of subacute pancreatitis is very unsatisfactory. This winter we have seen two or three patients who were obviously very poor operative risks because of extreme obesity. In these cases operation was postponed to see whether the process would quiet down from its acute phase.

At the time of this patient's admission to the hospital we felt that we could make a definite diagnosis of subacute pancreatitis in this case, so we postponed operation. The patient was enormous, with a huge obese abdomen. Her

chart shows that her condition remained essentially the same except for some improvement during the first day or two. The respirations and the pulse came down, while the temperature remained about the same. The white cell count was 33,000 on admission. It fell to 20,000 the next day and to 19,000 the day following. Several days later it was again 20,000. As the patient showed no further improvement after several days, we decided to operate on the tenth day after admission.

At operation extensive widespread fat necroses were found throughout the abdominal cavity. I believe if we had operated at the time of entry we should have found essentially the same picture. Not much could be done except to clear out the focus of infection in the biliary tract by removing the stones, drain the gall bladder and insert a wick into the pancreas, the focus from which the enzymes causing the peritoneal reaction spread.

The postoperative course is quite typical for this particular type of patient. She did not get much better or much worse immediately. There was sloughing out of some pancreatic tissue through the abdominal wound and a great deal of distention. She ultimately died of what we thought was terminal pneumonitis.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Acute and chronic cholecystitis and cholelithiasis.
Acute pancreatitis.

ANATOMIC DIAGNOSES

Cholelithiasis.
Cholecystitis, acute and chronic.
Acute gangrenous pancreatitis.
Diffuse fat necroses.
Operative wounds: drainage of pancreas, cholecystotomy, ileostomy.
Bronchopneumonia.
Gas bacillus (?) septicemia.
Acute splenic tumor.
Fatty infiltration of the liver.
Obesity.
Hyperplasia of the bone marrow.

PATHOLOGIC DISCUSSION

DR. JOHN I. BRADLEY: The gall bladder was adherent to the liver and to the surrounding structures. Its wall was thickened, edematous and crepitant. The mucosal surface was opaque and grayish. The gall bladder contained a small amount of bile with a few small soft calcareous masses. No calculi were found in the bile ducts.

The pancreas was practically completely necrotic. The space normally occupied by the pancreas is described as a large abscess cavity containing thick opaque necrotic material. There were extensive fat necroses.

The liver was large, weighing 2,500 grams. It was soft, flabby, friable and crepitant. The cut surface had a vacuolated, spongy appearance.

The lungs showed extensive atelectasis and congestion and in addition a number of patches of bronchopneumonia.

The bacteriologic study showed hemolytic streptococcus and bacillus coli in the heart's blood and staphylococcus in the peritoneal cavity. From the liver, gas bacillus was cultured. (The autopsy was done twelve hours postmortem.)

Here are two sections of the pancreas. The first shows the persistence of scattered masses of pancreatic tissue. The major portion of the pancreatic tissue in this section is however partially or completely necrotic. The second section is perhaps more representative, as it shows complete necrosis of the entire tissue.

This section of the omentum contains several areas of fat necrosis. A section of the liver shows a marked coarse vacuolization, and even under low power a diffuse infiltration with numerous very large rod-like bacilli consistent in appearance with the gas bacillus can be made out.

DR. CHURCHILL: I might say that at no time either before or after operation did this patient show sugar in the urine. The blood sugar was 175 milligrams in the postoperative course shortly before she died.

CASE 18333

RIGHT-SIDED PAIN AND PERITONITIS

SURGICAL DEPARTMENT

PRESENTATION OF CASE

DR. JOHN D. STEWART*: This case concerns a man of sixty-three who came into the Emergency Ward with the complaint of pain in the abdomen.

During most of his life he had worked as a carpenter, but during the year before admission he had become too feeble to work and had been greatly disturbed by shortness of breath.

The incidents of interest in the past history are that during the past four years he had been troubled by repeated attacks of pain coming on suddenly in the right upper quadrant, often shooting through to the back and being very severe, lasting sometimes as long as twelve hours. With those attacks he was usually jaundiced and almost always vomited. At times the pain was severe enough to require narcosis and could not be relieved by position. Between attacks his digestion was poor. He complained particularly of gas after eating and a sense of fullness in the epigastrium.

The present illness proper began five days before admission, when he was seized suddenly with severe pain in the right upper quadrant

*Assistant resident on the West Surgical service.

which he thought was quite similar to that he had often suffered before. The pain soon passed away but left him weakened so that he hardly felt like moving about. He did not call a physician, however, until two days before admission. At that time he had an exacerbation of the pain. This time it was most marked in the epigastrium and right upper quadrant. There was some pain also in the shoulders. With the pain he had vomiting and elevation of temperature. His doctor gave him an injection of morphine. He came back to see him two days later, found him not improved and sent him into the hospital.

On admission to the Emergency Ward the patient was moderately sick. The temperature was 102° by rectum. The pulse rate was 120. The general condition was not good. The blood pressure was 120/70. The point of chief interest in the examination, however, was the abdomen. In the right half of the abdomen there was diffuse spasm with very marked tenderness, the signs being most marked to the right of the umbilicus and extending to the right flank. There was tenderness also in the epigastrium. The patient was not jaundiced.

The urine was negative. The white blood count was 22,000.

When he was examined first in the Emergency Ward it was felt that he probably had an attack of acute cholecystitis. He was sent to the ward for palliative treatment until the infection should subside. The next morning however he complained that the pain was much worse. Examination showed that the tenderness was more extensive than before and that almost the entire abdomen was diffusely resistant. There was tenderness on rectal examination as well. We felt that an emergency operation was indicated.

Under local anesthesia an incision was made in the right upper quadrant. On opening the peritoneum there was a gush first of clear fluid followed by thick pus which the surgeon noted had a fecal odor. The gall bladder was surrounded by fibrinous adhesions and was rather tense. With a finger an abscess cavity was broken into under the right border of the liver with escape of much similar pus. It was thought this was an abscess from the perforated gall bladder. It was obviously not a case for extensive operative procedure. A wick was sewed into the abscess cavity and another to the right flank through the same incision and the patient was returned to the ward.

The drains discharged thick foul pus quite freely in the next twenty-four hours. There was a certain amount of jaundice. The condition did not improve. The temperature and pulse rate remained elevated, the pulse about 120, the temperature 102° to 103.7°. On the third day after operation the patient died, having had increase in the respiratory rate before death associated with some signs at the right base taken as indicating bronchopneumonia.

Clinical Discussion

Dr. Beth Vincent: Was it felt at the time of operation that the gall bladder was the cause of the abdominal infection?

Dr. Stewart: I was standing by at the time of operation. The surgeon said that although he could see no hole in the gall bladder, the accumulation of fluid around it made him think the gall bladder was probably the source of infection. The only thing arousing suspicion was the odor of the pus. They commented on that at the time, but in view of the other findings they assumed that the gall bladder was the cause of the condition.

Clinical diagnoses (from hospital record)

Acute suppurative cholecystitis with perforation.
Peritonitis, generalized.
Bronchopneumonia, postoperative.

Anatomic diagnoses

Gangrenous appendicitis with perforation.
General peritonitis: non-hemolytic streptococcus and bacillus coli.
Operative wound: laparotomy with drainage.
Cholelithiasis.
Chronic cholecystitis.

Pathologic Discussion

Dr. John I. Bradley: At the time of autopsy we found about the liver, especially in the region of the gall bladder and to a slight extent in the pelvis, a thick yellowish exudate covering the peritoneal surface. In the region of the gall bladder and completely surrounding it there was a large amount of moderately thick yellowish pus. The gall bladder itself was small. The wall was thickened, measuring 2 to 3 millimeters. It contained a single large stone roughly 3 centimeters in diameter and a small amount of normal appearing bile. There were no calculi in the biliary ducts.

On further examination the cecum and the transverse colon were found to be markedly distended. A few friable adhesions were encountered at the base of the cecum in the region of the appendix. On separating these an acutely injected fibrin coated retrocecal appendix with two perforations in its distal end was found, and, lying free in this region, a hard fecalith about one centimeter in diameter was discovered. The tip of the appendix was directed upward so that the location of the appendix was probably the lower portion of the upper quadrant rather than the right lower quadrant.

The case is interesting from the point of view of differential diagnosis. The background is the same as that in the first case, Case 18331,—a long history of quite typical gall bladder attacks. Here, however, although the pathologic lesion is attributable to a concretion, the concretion was not in the biliary tract.

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OBSTETRIC EDUCATION

THE publication of the Report on Obstetric Education, an outcome of the White House Conference on Child Health and Protection should mark a forward step in our dealing with the problems connected with childbearing. Comprehensive in its scope, it focusses attention on some of our procedures for dealing with a problem which is important from many points of view. The impression that the Report makes on the reader is that a beginning has been made, very tardily indeed, but it has been made.

In meeting the compendious tests of civilization, we are deplorably backward on the count of widespread intelligent care for mother and child. Such care is conspicuous rather by its absence in most communities, and even in centers of medical enlightenment, and medical schools, obstetrics does not receive the attention that its importance for the welfare of the community would suggest as its due.

What is needed is not an emotional uprising of public opinion that at white heat demands that something be done about it, to be forgotten except by the historian when the cooling off process has taken place, but a gradual developing of informed opinion that is aware of what reasonable care involves and a taking for granted that such care of parturient women and their offspring will be provided by responsible bodies. From time to time there should be a determination of the validity of such taking for granted.

This Report is a timely critique of our assumption and exposes our inadequacies. The solution that naturally comes to one's mind is some kind of a benevolent despotism, that will *make* us provide for the need. Whether there is a hidden incompatibility in these terms *benevolent* and *despotism* is a problem for the philosophers. In practice, the experiment does not work. It does not endure long enough even to give a satisfactory demonstration of its value, if any.

It is the gradual growth that will accomplish lasting results; the continued dissemination of information as to the better way, the dispassionate evaluation of what we are doing, when compared with what others are doing, and with a possibly ideal procedure. That such growth is going on, the Report is gratifying evidence.

THE DEPRESSION AND PUBLIC HEALTH

UNDER this designation James A. Tobey, Dr.P.H. has compiled data furnished by the United Educational Program of the National Social Work Council relating to the effect of the financial depression on public health.

He refers especially to the expectation that the financial depression will materially affect the national vitality but concludes that this anticipation has not been verified, because the year 1931 was apparently less productive of ill health than any year in our history. Not only was there no undue prevalence of disease and no great epidemic, but the mortality rates were reduced. This is shown particularly in that the death-rate of tuberculosis, a disease which has, presumably, a definite relation to social and economic conditions, has declined from 71 to 67 per 100,000 population and this applies also to infant mortality which is one of the most sensitive indices of sanitary progress. The record during this two year period of depression should not, however, be construed as indicating the advisability of a reduction in the activities of health departments. One unfavorable feature of undue retrenchment is likely to be found later in the effect on communicable and organic diseases.

Aside from common health problems there seems to have been a demonstrable increase in mental disorders. Although there has been no general rise in mental cases of institutional severity, it is believed that surveys indicate a defi-

nite increase in nervous disturbances especially among those afflicted with the milder mental diseases.

This has been apparent particularly in the increase in admissions to the institutions for the feebleminded. Present conditions unquestionably have engendered fears and anxieties that are undermining the sense of security and interfering with the adaptation of individuals to existing conditions. This has also been shown in the suicide rate for 1931 which was appreciably higher than in the previous year. These later indications make it reasonable to argue in favor of continued efficiency in public health organizations, because there may be more definite evidence of physical disabilities in other fields.

Persons competent to deal with the subject of health administration are apprehensive that the better general health conditions may be temporary and that there will be revealed later more definite indications of lowered resistance on the part of the general population. Hence, undue economy in state and municipal expenditures for health is likely to be a false procedure and reductions in appropriations for preventive medicine should not be encouraged. It is very probable that combined public health movements have established a momentum sufficient to aid in the maintenance of health during the early periods of this depression, but the future may, on the other hand, exhibit a loss in the lowered vitality of the public with possible disastrous consequences. The effects of any unfortunate mental and physical depression may be chronic and cumulative with the possibility of certain permanent effects. Taken all in all, this is not a time for deflation in public health; on the other hand there should be a continuation of all reasonable activity in health services.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

POTTER, IRVING W. M.D. University of Buffalo School of Medicine, 1891. F.A.C.S. Attending Obstetrician, St. Mary's Infant Asylum and Maternity Hospital, Deaconess, Buffalo City and Millard Fillmore Hospitals; Consulting Obstetrician, Lafayette General Hospital, Salvation Army Home. His subject is "The Technique of Elective Version." Page 287. Address: 680 Forest Avenue, Buffalo, N. Y.

HEFFERNAN, ROY J. M.D. Tufts College Medical School, 1917. F.A.C.S. Visiting Obstetrician and Gynecologist, Carney Hospital. Visiting Obstetrician, St. Mary's Hospital. Instructor of Clinical Gynecology, Tufts College Medical School. His subject is "Routine Prophylactic Injection of Whole Blood in the Newborn. A Report of 800 Cases." Page 293. Address: 524 Commonwealth Avenue, Boston, Mass.

BIGELOW, GEORGE H. A.M., M.D. Harvard University Medical School 1916. Doctor of Public Health, Harvard 1921. Prior to appointment in Massachusetts Department of Public Health, acted as Medical Director, Antioch College, Yellow Springs, Ohio, and Director of Clinic of the Cornell University Medical College. Appointed Director of Division of Communicable Diseases, Massachusetts Department of Public Health, 1924. Appointed to present position as Commissioner of Public Health for Massachusetts, 1925. His subject is "What Can the State Department of Public Health Do To Aid in the Program of This Section to Improve the Practice of Obstetrics?" Page 297. Address: State House, Boston, Mass.

COLBY, FLETCHER H. B.S., M.D. Harvard University Medical School 1918. Assistant in Genito-Urinary Surgery Harvard Medical School. Associate Urologist Massachusetts General Hospital. Assistant Surgeon Palmer Memorial and Huntington Memorial Hospitals. His subject is "Resection of the Presacral Nerve for Cord Bladder." Page 302. Address: 6 Commonwealth Avenue, Boston.

VERMOOTEN, VINCENT. A.B., M.A., M.D. Johns Hopkins University School of Medicine 1923. F.A.C.S. Assistant Professor of Urology, Yale University. His subject is "A Modification of the Kidd Suprapubic Perforator and Introducer." Page 304. Address: New Haven Hospital, New Haven, Conn.

MCCARTHY, JOSEPH F. M.D. Columbia University College of Physicians and Surgeons, 1901. F.A.C.S. Professor of Urology, Columbia University; Director Department of Urology, New York Post-Graduate Medical School and Hospital. His subject is "The Management of Prostatic Obstructions by Endoscopic Revision." Page 305. Address: 2 East 54th Street, New York City.

BARNEY, J. DELLINGER. A.B., M.D. Harvard University Medical School 1900. F.A.C.S. Chief of Service, Urological Department, Massachusetts General Hospital. Assistant Professor Genito-Urinary Surgery, Harvard Medical School. His subject is "The Problem of Diagnosis and Treatment of Prostatic Conditions." Page 313. Address: 87 Marlborough Street, Boston.

TALBOT, FRITZ B. M.D. Harvard University Medical School 1905. Chief of the Children's Medical Service, Massachusetts General Hospital. Clinical Professor of Pediatrics, Harvard University. His subject is "Basal Metabolism of Twins." Page 318. Address: 270 Commonwealth Avenue, Boston.

LIVINGSTON, HERMAN H. M.D. Tufts College Medical School 1931. Resident Obstetrician at the Evangeline Booth Hospital, Boston. His subject is "Incubation." Page 320. Address: 330 Mt. Auburn Street, Cambridge, Mass.

MISCELLANY

COLLODAURUM

The Kahlenberg Laboratories, Inc., have forwarded a letter extolling the benefits to be derived from the use of Collodaurum (Colloidal Gold) in the treatment of cancer. In the letter the advice of Dr. Edward H. Ochsner regarding dosage appears.

The *Journal of the American Medical Association* in its issue of February 18, 1928, page 564 reported the decision of the Council on Pharmacy and Chemistry of the American Medical Association which was to the effect that the claims for Collodaurum are not endorsed.

It will be best to refrain from using any treatment for cancer until authorities are agreed as to its merits.

MORTALITY RATES

Telegraphic returns from 85 cities with a total population of thirty-seven million for the week ending August 6, indicate a mortality rate of 8.9 as against a rate of 10.4 for the corresponding week of last year. The highest rate (14.7) appears for Washington, D. C., and the lowest (3.0) for Somerville, Mass. The highest infant mortality rate (15.2) appears for Washington, D. C., and the lowest for Canton, Ohio, Fall River, Mass., Lowell, Mass., Lynn, Mass., New Bedford, Mass., San Diego, Calif., South Bend, Ind., Tacoma, Wash., Tampa, Fla., Utica, N. Y., and Waterbury, Conn., which reported no infant mortality.

The annual rate for 85 cities is 11.6 for the thirty-one weeks of 1932, as against a rate of 12.5 for the corresponding period of the previous year.

The rate of 8.9 for the first week of August is the lowest of any week in 1932 thus far.

A REMARKABLE ACHIEVEMENT BY AN OLD-TIME SURGEON

Dr. S. B. Woodward still retains his interest in Surgery and, having seen reference to the case cited below, wrote for the facts which are set forth as follows:

March 9, 1932.

Samuel B. Woodward, M.D.,
Worcester, Mass.

Dear Dr. Woodward,

Postmaster Seymour of this city handed me your letter of the 7th inst., with the request that I give you any information that I might have regarding its contents.

In reply I would say that the item you mention as having read concerning Dr. DeWolf is correct.

When practicing in Ravenna, O., he had in his employ an Irishman who suffered from hernia which became strangulated, and on September 17, 1825 he opened the abdomen, and finding a portion of the intestine in a gangrenous condition, removed 6 or 7 inches of it, sutured the ends together, replaced the intestines, and closed the wound.

The patient was 57 years of age, intemperate, but made an uneventful recovery, and lived some years afterwards.

This is a matter of record.

It might also interest you to know that he was born in April 1786 in Granby, Conn., and was the fifth in a family of 13.

He came to Vernon, Trumbull Co., O., in the spring of 1800 and later in life studied medicine under a Dr. Seely of Howland Trumbull Co., O.

He commenced practice in Rootstown, Portage Co., O., where he married Eunice Goodrich, only child of John Goodrich, and in 1810 located in Ravenna, O.

He is reputed to have had an extensive practice throughout Portage and surrounding Counties, but retired from active practice in 1839, living upon his farm west of town where he died in 1869 at the age of 83.

Trusting this record will answer your enquiry, I am

Yours sincerely,
GEO. J. WAGGONER.

RECENT DEATHS

TROUPIN—DR. ABRAHAM SOLOMON TROUPIN died August 14, 1932, aged 38, in his summer home at Kenberma. His residence was in Brookline, Massachusetts, and his office was at 311 Commonwealth Avenue, Boston.

Dr. Troupin graduated from the Tufts College Medical School in 1918 and joined the Massachusetts Medical Society in 1919. He was assistant professor of Gynecology at Tufts College Medical School, visiting obstetrician at the Boston City and Evangeline Booth Hospitals, and a member of the visiting staff of the Beth Israel Hospital.

He was a member of the Greater Boston Medical Society, the Shawmut Lodge, A. F. and A. M., Aleppo Temple, the University Club, and the New Century Club. He married Miss Gladys Siskind of Lawrence, Massachusetts in 1924.

VALENTINE—DR. HENRY CHARLES VALENTINE died at his home in Lexington, Massachusetts, August 10, 1932, after a long illness. He was born in 1863 and received his M.D. degree from the University of Michigan Medical School in 1892. He joined the Massachusetts Medical Society in 1893 and was a Fellow of the American Medical Association. He served the town of Lexington as town physician for thirty years.

Dr. Valentine is survived by his widow Mrs. Mary Sherborn Valentine, a daughter Mrs. Sheldon Loring, and two sons John S. and Damon Valentine.

MERRIAM—Dr. Franklin Henry Merriam died at his home in South Braintree, Massachusetts, August 9, 1932. He was born in 1870 and acquired his premedical education at the Appleton Academy, New Ipswich, New Hampshire, and received his M.D. degree from the Harvard University Medical School in 1899. He began his practice in Sterling, Massachusetts, after a few years moving to Holbrook, Massachusetts, where he served as town physician, and later to South Braintree. He joined the Massachusetts Medical Society in 1899 holding membership in the Norfolk South District Medical Society at the time of his death.

He served on the school board of Braintree for fifteen years and was a member of the Delta Masonic Lodge, the Puritan Lodge, I. O. O. F., and the Braintree Rotary Club. Dr. Merriam leaves a widow Mrs. Stella M. Merriam, two sons, Henry C. and Robert J. Merriam and a daughter Elizabeth Merriam all of South Braintree.

NOTICES

REMOVAL

Joseph L. Morse, M.D., announces the removal of his office from the eighth floor to the twelfth floor at the same address, 200 West 59th Street, New York City.

EXAMINATIONS TO FILL VACANCIES IN ARMY MEDICAL CORPS

The Secretary of War has announced that an examination for appointments as First Lieutenant in the Medical Corps of the Regular Army will be held September 12-16, 1932. Examining boards, if necessary, will be convened at the following places and applicants will be ordered to appear before the board most accessible to their homes: Boston, Massachusetts; New York City; Washington, D. C.; Fort Monroe, Virginia; Fort Bragg, North Carolina; Atlanta, Georgia; Fort Benning, Georgia; Columbus, Ohio; Carlisle, Pennsylvania; Indianapolis, Indiana; Chicago, Illinois; St. Louis, Missouri; Hot Springs National Park, Arkansas; San Antonio, Texas; Fort Sill, Oklahoma; Fort Leavenworth and Fort Riley, Kansas; Fort Omaha, Nebraska; Fort Snelling, Minnesota; Denver, Colorado; Cheyenne, Wyoming; El Paso, Texas; Los Angeles and San Francisco, California; Fort Lewis and Vancouver Barracks, Washington.

After the results of the examination have been determined, successful candidates will be ordered to an Army general hospital or a large station hospital as First Lieutenant of the Medical Reserve Corps on active duty for a period of not to exceed one year. After a sufficient period of observation those who have demonstrated the necessary qualifications will be commissioned in the Medical Corps of the Regular Army to fill existing vacancies.

To be eligible for appointment in the Medical Corps the applicant must be a male citizen of the United States between the ages of 23 and 32 years, a graduate of an acceptable medical school legally authorized to confer the degree of Doctor of Medicine, must have had at least one year's hospital training subsequent to the completion of a four years' course of instruction in such medical school or its equivalent.

For further information prospective applicants should communicate with The Adjutant General of the Army or The Surgeon General of the Army, Washington, D. C.

EIGHTH CLINICAL CONGRESS OF THE CONNECTICUT STATE MEDICAL SOCIETY

New Haven, September 26, 27, 28, 1932

Advance Program

The Eighth Clinical Congress of the Connecticut State Medical Society will be held in New Haven, on September 26, 27, 28, 1932. The meetings will be held in the Sterling Hall of Medicine and the New Haven Hospital.

The fee for the Congress is $5.00 which includes admission to all sessions of the Congress, luncheon on each of the three days, and garage accommodations. It does not include the dinner meeting on September 26.

Early registration will be appreciated. Send your check for $5.00 to Dr. Creighton Barker, Chairman, Committee of Publicity and Registration, 129 Whitney Avenue, New Haven, Connecticut.

PROGRAM

Monday, September 26, 1932

Industrial Medicine

Auditorium Sterling Hall of Medicine
Dr. Daniel Sullivan, New London, Presiding
10:00 A.M., D. S. T.

Pulmonary Disease Associated with Dust Inhalation—Dr. Henry K. Pancoast, Philadelphia.

Metallic Poisoning—Dr. Joseph C. Aub, Boston.

Radium Poisoning in Industry — Dr. Harrison S. Martland, Newark.

Treatment of Traumatic Disorders of the Nervous System—Dr. Francis C. Grant, Philadelphia.

2:30 P.M.

Round Table Discussions

Industrial Pulmonary Disease—Dr. Willard B. Soper, Chairman; Dr. Henry K. Pancoast.

Poisoning in Industry — Dr. Leonard Greenberg, Chairman; Dr. Joseph C. Aub, Dr. Harrison S. Martland.

Traumatic Diseases of the Nervous System — Dr. Samuel C. Harvey, Chairman; Dr. Francis C. Grant.

Industrial Dermatoses—Dr. John E. Lane, Chairman.

Demonstrations

Roentgenographic Studies of Industrial Pulmonary Diseases.

Methods for Determining Dust Content of Air Estimation of Carbon Monoxide in Air, Benzol in Air.

Apparatus for Estimation of Radium in Human Body.

7:00 P.M.

Dinner

New Haven Lawn Club

Sociological and Economic Problems Associated with the Practice of Medicine—(Speaker to be announced).

TUESDAY, SEPTEMBER 27, 1932

CANCER

Auditorium Sterling Hall of Medicine
Dr. Thomas H. Russell, Presiding
10:00 A.M., D. S. T.

Cancer of the Breast — Dr. Robert B. Greenough, Boston.

Cancer of the Uterus — Dr. William P. Graves, Boston.

Pathology of Cancers of the Breast and Uterus—Dr. Frederick W. Stewart, New York.

Radiation Therapy in Cancers of the Breast and Uterus—Dr. Henry Schmitz, Chicago.

2:30 P.M.

Round Table Discussions

Clinical and Pathological Aspects of Cancer of the Breast—Dr. Ashley W. Oughterson, Chairman; Dr. Robert B. Greenough.

Cancer of the Cervix—Diagnostic Aids in the Early Detection of Cancer of the Cervix—Dr. James R. Miller, Chairman; Dr. William P. Graves, Dr. Henry Schmitz.

Pathological Studies of Cancers of the Breast and Uterus—Dr. Frederick W. Stewart, Dr. Douglas M. Gay, Dr. Harry M. Zimmerman.

8:00 P.M.

Public Meeting

Woolsey Hall

The Etiology of Cancer — Dr. James Ewing, New York.

Cancer as a Social Problem—Dr. George H. Bigelow, Boston.

WEDNESDAY, SEPTEMBER 28, 1932

DISEASES OF THE NERVOUS SYSTEM

Auditorium Sterling Hall of Medicine
Dr. Fritz C. Hyde, Greenwich, Presiding
10:00 A.M., D. S. T.

Modern Methods of Neurological Diagnosis — Dr. Theodore H. Weisenburg, Philadelphia.

Possibilities of Neuro-Surgery in the Treatment of Diseases of the Nervous System—(Speaker to be announced).

Commoner Functional Disorders of the Nervous System—Dr. Lewellys F. Barker, Baltimore.

2:30 P.M.

Round Table Discussions

Methods Employed in Neurological Examinations—Dr. James C. Fox, Chairman; Dr. Theodore H. Weisenburg.

Functional Nervous Disorders — Dr. Eugen Kahn, Chairman; Dr. Lewellys F. Barker.

Indications for and the Technique of Encephalography—Dr. William J. German.

Technical Procedures in Neurological Diagnosis—Dr. Bernard S. Brody.

Demonstrations

Encephalograms—Dr. W. A. LaField, Dr. William J. German.

Experimental Lesions of the Nervous System—Dr. John F. Fulton. Dr. Harold S. Burr.

REPORT AND NOTICE OF MEETING

THE MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH

At the meeting in Worcester of the Massachusetts Association of Boards of Health on July 27, the literary program included a statement by Dr. George H. Bigelow, State Commissioner of Public Health, with reference to infantile paralysis and the program of the Department, and a discussion of "Economies in the Disposal of Garbage and Rubbish," by Harrison P. Eddy, together with a letter from Dr. George Francis Curtis, chairman of the Newton Board of Health, with reference to the wasteful "economy" involved in cutting out necessary health procedures.

For a part of the day's entertainment the visitors were invited to inspect the new garbage disposal incinerator, and to visit the new tuberculosis wing of the Belmont Hospital, and after a luncheon at the Worcester Country Club, with its literary exercises, to visit the new Worcester County Tuberculosis Hospital in West Boylston, now in process of construction.

The incinerator, intended to displace the city's hog ranch, has a capacity of about 200 tons a day, and the cost of construction was $258,000. It has not yet been accepted by the city, but a special demonstration was given for the information of the visiting health officers. The new wing at the Belmont Hospital has been completed this year at a cost of $300,000.

The situation in infantile paralysis is known to most physicians, and Dr. Bigelow made merely a brief statement. He noted that the Harvard Commission has withdrawn from diagnosis and confines its work to research, and that the State Health Department has selected some 35 hospitals at which serum can be administered. He also suggested that the reports of cases thus far point to a normal or subnormal year, with an expectancy of possibly 200 to 300 cases.

Mr. Eddy, a member of the well-known Boston firm of civil engineers, discussed thoroughly and from many points of view the problems of collection and disposal of garbage and rubbish. While primarily these are not really health activities, they are, nevertheless, included in the duties of the

health department in many communities, and the discussion will therefore interest health officers. At the present time this is especially true, since the demands for economy may interfere with funds needed for health effort.

Mr. Eddy set forth his facts in a variety of ways. He stated that garbage collection figures from 13 cities, despite the assumed economies of hard times, show an increase during the past two years in seven cities, two reduced in 1930 and rebounded in 1931, while Buffalo, Boston, Cleveland and Worcester showed consistent reductions.

Much consideration was given to the question of the city department best fitted to care for waste. In practice there is considerable variety. In 1927 of 25 municipalities, the health department functioned in 13 cases, the street or highway department in four, a scavenger department in two, with sanitary, public welfare, refuse and garbage, engineering and streets and engineering departments in one case each.

In Massachusetts the State Department of Public Health concluded in 1926 that garbage collection should be carried on by what corresponds to a department of public works, this being best fitted in men and equipment, but that the board of health should regulate transportation through the streets. A committee of the Boston Society of Civil Engineers reported these collections to be a matter of traction rather than health, and recommended that a highway or public works department should care for them, with the coöperation of the board of health.

After a pretty thorough consideration of different suggestions toward economies in these collections, Mr. Eddy summed up the various leads in half a dozen sentences. Encouragement of householders to produce less waste does not offer material economy, nor does the salvage of rubbish. Collections should be carried on by some other department, but with the coöperation of the health department. A service charge for collections appears to be legally permissible in Massachusetts. Equitable methods for measurement of waste appear to be possible, and payments should be made to the city treasurer or collector, as in the case of water meter charges.

Following Mr. Eddy, Dr. Bigelow, in a short but emphatic address, called the attention of the health officers to the many cuts in funds made or in prospect, which under the name of "economy" seek to eliminate important features of health department work, such as baby clinics, preschool clinics and the like. He called upon the health officers to make it known that such a course means trouble in future years.

Dr. Curtis was unavoidably absent, but in a letter he registered a protest against unfortunate economies in municipal health department budgets. He noted that there are two general divisions in the work given to health departments. The major activities include the care and prevention of communicable disease, especially tuberculosis; the supervision of children both during preschool and school age; and the inspection of food supplies. The curtailment of any one of these activities may be followed by serious consequences, although it may be years before the results become manifest.

SCIENTIFIC PROGRAM FOR ANNUAL MEETING OF THE NEW ENGLAND SURGICAL SOCIETY

To Be Held at Hartford, Connecticut, September 30 and October 1, 1932

Friday Afternoon, September 30

1. A Comparative Mortality Study of Acute Appendicitis. Irving J. Walker, Boston, Mass.
   Discussion: Harry C. Clifton, Walter C. Seelye.
2. Appendiceal Abscess. Donald S. Adams, Worcester, Mass.
   Discussion: Carl M. Robinson, Edward H. Risley.
3. Operative Evacuation of the Small Intestine in Paralytic Stasis. David Cheever, Boston, Mass.
   Discussion: Alfred M. Rowley, Lucius C. Kingman.
4. Bleeding Duodenal Ulcer. Arthur W. Allen, Boston, Mass.
   Discussion: Lincoln Davis, William F. Verdi.
5. Intrahepatic Cholelithiasis, with report of cases. Michael F. Fallon, Worcester, Mass.
   Discussion: Robert C. Cochrane, Samuel C. Harvey.
6. Recurrent or Persistent Jaundice in Youth. Willis E. Hartshorn, New Haven, Conn.
   Discussion: David W. Parker, William E. Ladd.
7. Postoperative Thrombophlebitis. Ernest L. Hunt, Worcester, Mass.
   Discussion: John Homans, Allen G. Rice.
8. Report of a Case of Lingual Goitre. Richard Miller, Boston, Mass.
   Discussion: Howard M. Clute.
9. A Case of Intrathoracic Goitre. Edward L. Young, Jr., Boston, Mass.
   Discussion: Frederick B. Sweet.

Saturday Morning, October 1

1. The Treatment of Compound Fractures. Paul P. Swett, Hartford, Conn.
   Discussion: Charles Scudder, Carleton R. Metcalf.
2. The Surgery of Chronic Arthritis. Robert B. Osgood, Boston, Mass.
   Discussion: Ezra A. Jones, Philip D. Wilson.
3. Traumatic Arthritis, So-Called. Frederic J. Cotton, Boston, Mass.
   Discussion: George W. Hawley, James B. Woodman.

4. Changes in the Epiphyses, Secondary to Infection. James W. Sever, Boston, Mass.
   Discussion: John F. Gile, Horace K. Sowles.
5. The Treatment of Carcinoma of the Prostate. George G. Smith, Boston, Mass.
   Discussion: Winford O. Wilder, Alfred Mitchell, Jr.
6. Psoas Abscess of Pyogenic Origin. J. Dellinger Barney, Boston, Mass.
   Discussion: William C. Quinby, Arthur L. Chute.
7. Choice of Approach in Thoracotomy for Acute Suppurative Pericarditis. Philemon E. Truesdale, Fall River, Mass.
   Discussion: Horace Binney, Wyman Whittemore.
8. The Use of Tube Grafts for Cicatricial Contractions of the Neck. Charles G. Mixter, Boston, Mass.
   Discussion: Robert B. Greenough, Lyman Allen.
9. Lipoma of the Uterus with Report of a Case. Fred B. Lund, Boston, Mass.
   Discussion: William P. Graves, John W. Keefe.
10. A Case of Gaucher's Disease in a Child. David W. Parker, Manchester, N. H.
    Discussion: Beth Vincent.

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

September 19-22 — International Congress of Biliary Lithiasis. See notice on page 427, issue of February 25.

September 26, 27, 28—Eighth Clinical Congress of the Connecticut State Medical Society. See page 331.

September 30, October 1—Scientific Program for Annual Meeting of the New England Surgical Society. See page 333.

October 17-21—Clinical Congress of the American College of Surgeons. See page 1330, issue of June 23.

October 17-28—The 1932 Graduate Fortnight of the New York Academy of Medicine. See page 1375, issue of June 30.

October 22-24—Health Education Institute. See notice on page 47, issue of July 7.

October 24-27 — American Public Health Association. See notice on page 1321, issue of December 31, 1931.

October 24-28—Inter-state Postgraduate Medical Association of North America. See page 39, issue of January 7.

BOOK REVIEWS

Obstetric Education. Report of the Subcommittee on Obstetric Teaching and Education. Fred Lyman Adair, M.D., Chairman.* White House Conference on Child Health and Protection. The Century Co. New York, London.

The report of the Committee on Prenatal and Maternal Care consists of an Introduction by the Chairman, the reports of the subcommittees on Obstetric Education of Physicians (Undergraduate and Graduate), of Nurses and Nursing Attendants, of Midwives, of the Laity and Social Workers. Subsequent to each report are supplementary reports and discussion, and the text closes with an Appendix on Medical School Requirements in Obstetrics and Gynecology and on Statutory Regulations of Persons other than Midwives Practicing Obstetrics. There are several short bibliographies and the index is fairly adequate.

This reference book is a very valuable contribution, the most comprehensive summary that has appeared, and it deserves a much wider circulation than it is likely to have. Rather technical for the general reader, it contains much that it would profit him to know. It should be read and considered by every student of obstetric education.

The Report is a strongly condemnatory appraisal of our system of dealing with problems of obstetrics. If our procedure may be called a system, it is characterized by lack of order, of intelligence and of forethought. The midwife situation is an example. We pride ourselves on being practical and refuse to face the facts. Medical education has refused to face the facts of obstetric education and only in the twentieth century was there established a school for midwives in this country. Yet it is estimated that nearly fifteen per cent of the childbirths in the United States are attended by midwives. We provide neither physicians who will do this work, nor training for midwives who are willing to do it. The indictment is well set forth by the Chairman, Dr. Adair, whose Introduction is perhaps, the part most likely to appeal to the general readers, if any such should see the Report.

The book is a part of the result of the White House Conference on Child Health and Protection and is thoroughly up-to-date. In it, the mother, formerly the focus of attention, is naïvely relegated to the subordinate position of "also ran", among the laity (p. 238).

Thérapeutique Médicale. IV. Poumons et Tuberculose. By M. Loeper, and others. Masson & Cie, Paris, 1932. Price 50 fr.

The fourth volume of a collection of monographs on Therapeutics is devoted to the treatment of diseases of the lung including tuberculosis. Thirty chapters by many different authors of the French School deal in a practical way with the symptomatic and specific treatment of pulmonary disease. Perhaps the most outstanding chapter is that on therapeutic pneumothorax prepared by a master in this field, E. Rist. It is admirably written and includes a brief outline of the development of the concept of collapse therapy and its introduction into practical clinical medicine. An excellent chapter by Émile Sergent follows, summarizing in a concise manner the indications for the surgical treatment of pulmonary tuberculosis. Other sections of the work are concerned with vaccination with BCG, chemotherapy of tuberculosis, the organization and function of a sanatorium, the treatment of pulmonary gangrene and the control of cough and hemoptysis. On the whole, the volume contains nothing that is not readily available in other and locally better known systems of medicine or therapeutics.

*See editorial, page 328 of this issue.